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ABSTRACT

School districts receiving Chapter 1 funds are to conduct a study of sustained effects once every 3 years and to use the results for planning future Chapter 1 programs. As part of this effort, the Columbus (Ohio) public schools conducted pretest-to-posttest, posttest-to-sustained effect, and pretest-to-sustained effect studies of 4,031 students in grades 2 through 7 who participated in Chapter 1 reading and mathematics programs in the 1992-93 school year. Data for 16 analysis groups (reading and mathematics at different levels were collected in April of 1992 (pretest), 1993 (posttest), and 1994 (sustained effects). Those who exited the Chapter 1 program had the highest posttest scores on average, but lost a substantial portion of this gain in the posttest-to-sustained effect period. At least 50 percent of students in 14 of the 16 study groups had positive pretest-to-sustained effect change values, higher than those of "evaluation" (comparison) groups. The results agree with the findings of the similar sustained effects study for 1989-91. Twenty-two figures and 24 tables are included. (Contains 3 references.) (SLD)

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ED 384 684

Elementary and Secondary Education Act - Chapter 1

REPORT OF THE CHAPTER 1 SUSTAINED EFFECTS STUDY

February 1995

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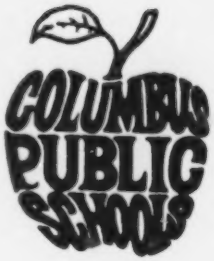

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Elementary and Secondary Education Act - Chapter 1

REPORT OF THE CHAPTER 1 SUSTAINED EFFECTS STUDY 1992-94

ABSTRACT

Purpose of the Study

According to ESEA Chapter 1 guidelines, school districts receiving Chapter 1 funds are to conduct a study of sustained effects once every three years and use the results in planning future Chapter 1 programs. To this end, this study addresses three research questions related to Normal Curve Equivalent (NCE) change values: a) What is the change from pretest to posttest?; b) What is the change from posttest to sustained effect?; and, c) What is the change from pretest to sustained effect?

Method

A Spring - Spring - Spring testing design was adopted. Data were collected in April of three successive years: 1992 (pretest), 1993 (posttest), 1994 (sustained effects). Five eligibility criteria were used to judge whether a pupil would become a part of the dataset used for analysis purposes. Each pupil had to: a) participate in a Chapter 1 reading/math program in Columbus Public Schools during the 1992-93 school year; b) be in grade 2-7; c) be in the 1992-93 evaluation sample; d) be promoted to the next grade for the 1993-94 school year; and, e) have test scores for all three Spring measurements. Data from these measurements were matched by student number; pupils not meeting all five criteria were eliminated from the study.

Data were partitioned by skill area (Reading-Basic; Reading-Advanced; Math-Basic; Math-Advanced), and by group-of-interest (exited program after one year; in the evaluation sample the second year; served but not in the evaluation sample the second year; total). Thus, 16 analysis groups were evaluated.

Results

From the 1992-93 Chapter 1 data file, 4,031 pupil records met the first three eligibility criteria and were considered for this study: 1,821 Reading records and 2,210 Math records. After selection based on eligibility criteria four and five, and further partitioning by group-of interest, these counts were observed: Reading Basic=1,425; Reading Advanced=1,466; Math Basic=1,751; and Math Advanced=1,790.

Pupils who exited the Chapter 1 program had the highest posttest scores, on average. Pupils in the evaluation sample and served subsets were lower at posttesting than pupils in the exited group, and were quite similar in terms of change values. Served pupils did posttest--on average--higher than evaluation-sample pupils. Exited pupils tended to lose more pretest-to-posttest change than did other pupils, when posttest-to-sustained effect change was evaluated. Evaluation sample (Reading-Basic) pupils, on average, actually had lower posttest scores than pretest scores.

Exited pupils in the Math-Basic subset lost more than 45% of the positive pretest-to-posttest change, when posttest-sustained effect change was evaluated. When pretest-to-sustained effect change was evaluated, 14 of the 16 study groups showed positive change. Served pupils in Math Basic and Math Advanced presented--on average--negative pretest-to-sustained-effect change values.

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An assessment of individual pupil change showed that at least 50% of the pupils in 14 of the 16 study groups had positive pretest-to-sustained effect change values. Served pupils in Math-Basic and Math-Advanced fell below the 50% level. Of pupils in the Reading-Basic exited group, 79.5% had positive pretest-to-posttest change values.

Summary

In June 1992, the Columbus Public Schools submitted a similar *Sustained Effects Study.* The current study was conducted using the same methodology--for the most part--to that used to report findings from the 1989-91 study. Recommendations from that study could be postulated for the current study:

1. Exited groups, by definition and by observation, will gain more NCEs during their year of exposure to Chapter 1 programming than will any of the remaining groups.

2. Exited groups will lose more NCEs during year two than will any of the remaining groups.

3. Evaluation groups, again, by definition and observation, will have lower "long-term" (pretest to sustained effect) gain than will be observed for served groups.

REPORT OF THE CHAPTER 1 SUSTAINED EFFECTS STUDY

1992-94

Introduction

ESEA Chapter 1 evaluation guidelines require school districts receiving Chapter 1 funds to conduct a study of the sustained effects (SE) of Chapter 1 programs. The study is to be conducted once every three years and the results are to be used in the planning of Chapter 1 subsequent programs.

This study examined the effect of Chapter 1 service on four skill areas: Total Reading (TR, basic), Reading Comprehension (RC, advanced), Total Math (TM, basic), and Math Concepts and Applications (MA, advanced). This examination used a Spring - Spring - Spring testing design: pretest 4/92, posttest 4/93, and sustained effects 4/94. Primary emphasis was given to determining the extent to which the reading and math effects obtained by pupils in the 1992-93 Chapter 1 Evaluation Sample (i.e., study-eligible pupils) were sustained during the 1993-94 school year. Use of this design made possible identification of Chapter 1 pupils in terms of pretest/posttest change, posttest/sustained effects change, and pretest/sustained effects change.

Within each of the four skill areas of Chapter 1 instruction, four groups of study-eligible pupils were evaluated: not served by Chapter 1 in 1993-94 (exited pupils); in the 1993-94 evaluation sample; served but not in the 1993-94 evaluation sample; and total (sum of the first three groups). Results are presented by 1992-93 grade levels (grades 2-7).

In this context, this study addressed three research questions:

a. What effect did service have on achievement level pretest (4/92) to posttest (4/93)?

b. What achievement-level sustained effect was observed posttest (4/93) to sustained effect (4/94)?

c. What net-effect achievement level was observed pretest (4/92) to sustained effect (4/94)?

Method

Study Eligibility

Five criteria were used to select 1992-93 Chapter 1 pupils for analysis. To be included in the study, a pupil had to meet each of these five criteria:

1. *The pupil was served in either a Chapter 1 reading or mathematics program in a Columbus Public School during the 1992-93 school year.* Nonpublic program pupils were not included in the study due to the small number of these pupils and the fact that their test results indicated that, as a group, they are not typical of the public school group.

2. *The pupil was in grades 2-7 during the 1992-93 school year.* Pupils in grade 1 were not included because they were not tested on the requisite 12-month basis. Pupils in grade 8 were not included in the study because it was not feasible to collect sustained effects test scores in the ninth grade. This was because Chapter 1 services were not provided beyond grade 8 and no achievement testing was conducted by the district at grades 9 and above.

3. *The pupil was in the 1992-93 evaluation sample* by virtue of having valid pretest/posttest scores and meeting one of the following attendance criteria: for all reading programs, (see Table 2), attended at least 80% of the instructional days or was discontinued; for math programs, attended at least 50% of the instructional days or was discontinued. A pupil could be in the basic skills sample, the advanced skills sample, or both.

4. *The pupil was promoted to the next grade for the 1993-94 school year.* This follows Chapter 1 evaluation procedure for pretest/posttest analysis and allows for a more meaningful interpretation of results.

5. *The pupil had test scores for all three testing periods* (Spring 1992, Spring 1993, Spring 1994).

The data file for 1992-93 Chapter 1 service (see eligibility criteria #1-3) contained a total of 4,031 potential cases for the study. Application of the five selection criteria produced the included pupils displayed in Table 1. The four observed groups are arrayed to show membership by instructional area (reading or math) and skills area (basic or advanced). For example, the Table 1 "Total" row shows the number of pupils per instructional and skill area. There were 1,425 pupils who were selected by the five criteria for the Reading-Basic group. There were 577 pupils who were in the exited group, Reading-Basic. The test series and subtests that were used to measure basic and advanced skills are given in the next section (see Table 3).

Table 2 shows the number of potential pupils for this study by 1992-93 program name and actual 1993-94 service project name. Counts for 1993-94 do not include exited pupils.

Test Instruments

Chapter 1 pupils were administered test instruments as described in Table 3. For sustained effects (SE) values, all pupils took the grade and time-of-year appropriate tests of the *California Achievement Test* (CAT: CTB/McGraw-Hill, 1985). The 1992-93 second and third graders took the grade and time-of-year appropriate tests of the *Metropolitan Achievement Tests* (MAT6: The Psychological Corporation, 1985, 6th ed.) as a pretest and posttest. However, these pupils took a CAT as their sustained effects measurement in April 1994.

Subtests used to measure the basic and advanced skills areas for grades 3-7 are as follows: Reading-Basic (RB) = Total Reading (Reading Vocabulary and Reading Comprehension); Reading-Advanced (RA) = Reading Comprehension; Math-Basic (MB) = Total Math (Math Computation and Math Concepts and Applications); Math-Advanced (MA) = Math Concepts and Applications. For the MAT6 used at grades 2 and 3, Word Recognition Skills, Reading Vocabulary and Reading Comprehension make up Total Reading.

Procedure

Three data files were analyzed in this study. Two of these were compensatory education Program Involvement Files (PIF: 1992-93, PIF: 1993-94). The third data file used was the April 1994 districtwide testing file (DW) maintained by the Columbus Public Schools.

The 1992-93 PIF file was the basis for determining the pupils who met the first three eligibility criteria listed in the Method section. Records for pupils who met the first three eligibility criteria were matched by student number to the 1993-94 PIF file to determine Chapter 1 service status and grade promotion status. Then, records for these pupils were matched by student number to the DW file to secure SE values.

Table 1

Sustained Effects Study
Pupil Counts by Observed Group and Skills Area
After Selection Criteria were Applied

Observed Group[a]	Skills Area			
	Reading		Math	
	Basic	Advanced	Basic	Advanced
Exited	577	590	964	983
In 1993-94 Evaluation Sample	780	810	681	683
Served (not in sample)	68	66	106	124
Total	1,425	1,466	1,751	1,790

[a]Group definition: Exited - in the 1992-93 Evaluation Sample but not served in the 1993-94 program.

Evaluation Sample - in the 1992-93 Evaluation Sample and in the 1993-94 Evaluation Sample.

Served - in the 1992-93 Evaluation Sample, served in 1993-94, but not in the 1993-94 Evaluation Sample.

Total - the sum of Exited, Evaluation Sample and Served.

Table 2

Sustained Effects Study
Pupil Counts by Year and Project Code
for Pupils Meeting All Five Selection Criteria

	Year					
	1992-93			1993-94[a]		
Program Name	Code	Grades	Count	Program Name	Code	Grades	Count
Reading Elementary	93004	2-5	1,304	Reading Elementary	94004	2-5	694
Reading Middle	93014	6-7	423	Reading Middle	94014	6-7	337
Early Literacy	93398	2	94	Early Literacy	94398	2	2
Mathematics Elementary	93005	3-5	1,298	Mathematics Elementary	94005	3-5	331
Mathematics Middle	93015	6-7	912	Mathematics Middle	94015	6-7	649
Total			4,031				2,013

[a]Given membership in both years.

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Table 3

Sustained Effects Study
Test Level and Form

1992-93 Treatment Grade	1993-94 Sustained Effect Grade	4-92 Pretest Test/Level/Form	4-93 Posttest Test/Level/Form	4-94 Sustained Effect Test/Level/Form
2	3	MAT6 Primer L	MAT6 Primary 1 L	CAT 13 E
3	4	MAT6 Primary 1 L	MAT6 Primary 2 L	CAT 14 E
4	5	CAT 13 E	CAT 14 E	CAT 15 E
5	6	CAT 14 E	CAT 15 E	CAT 16 E
6	7	CAT 15 E	CAT 16 E	CAT 17 E
7	8	CAT 16 E	CAT 17 E	CAT 18 E

Table 4

Sustained Effects Study
Analysis Groups[a]

Group	N		Description
EXITRB	577	-	Exited, Reading-Basic (RB)
EVSAMPRB	780	-	Evaluation Sample, Reading-Basic (RB)
SERVEDRB	68	-	Served-not-in-Sample, Reading-Basic (RB)
TOTALRB	1,425	-	Sum of EXITRB, EVSAMPRB and SERVEDRB (RB)
EXITRA	590	-	Exited, Reading-Advanced (RA)
EVSAMPRA	810	-	Evaluation Sample, Reading-Advanced (RA)
SERVEDRA	66	-	Served-not-in-Sample, Reading-Advanced (RA)
TOTALRA	1,466	-	Sum of EXITRA, EVSAMPRA and SERVEDRA (RA)
EXITMB	964	-	Exited, Math-Basic (MB)
EVSAMPMB	681	-	Evaluation Sample, Math-Basic (MB)
SERVEDMB	106	-	Served-not-in-Sample, Math-Basic (MB)
TOTALMB	1,751	-	Sum of EXITMB, EVSAMPMB and SERVEDMB (MB)
EXITMA	983	-	Exited, Math-Advanced (MA)
EVSAMPMA	683	-	Evaluation Sample, Math-Advanced (MA)
SERVEDMA	124	-	Served-not-in-Sample, Math-Advanced (MA)
TOTALMA	1,790	-	Sum of EXITMA, EVSAMPMA and SERVEDMA (MA)

[a] Math Basic and Math Advanced were not tested at grade 2.

By matching the files this way, it was possible to identify and keep for further analysis only those pupil records who met all five eligibility criteria. The resulting subset of 1992-93 records were partitioned into 16 separate datasets according to group membership (see Table 4).

All data analyses were conducted using software code written in SAS (Statistical Analysis System, V.6.08). Each of the sixteen groups was processed individually to produce graphs and tables for each grade level involved in the study. For example, Figure 1, "Reading-Basic (Total Reading)", uses grade 2 data from Tables 5-8. Figures 1-6 use data from Tables 5-8; Figures 7-12 use data from Tables 9-12; Figures 13-18 use data from Tables 13-16; and Figures 19-22 use data from Tables 17-20.

Pupil Counts. Each of the 16 major datasets consists of at least 50 pupils. However, for example, when the "served" group for Reading-Basic is split by grade level, pupil count becomes less than 10 in certain instances. Conclusions made based on figures for these low-count subsets should be tempered accordingly.

Test/Level/Form Considerations. Second and third-grade pupils were tested with MAT6, with sustained effects scores from CAT. Therefore, extreme caution should be used in interpreting results. Complete test/level/form information is contained in Table 3.

Results

The following figures (1-22) and tables (5-20) report grade level findings. Each figure shows four curves: Exited, Evaluation Sample, Served-not-in-Sample, and Total. The legend below each figure associates the symbol used at each measurement point with a particular curve on the graph. Tabular data by the same skill areas is associated by name with each specific figure.

Change values are presented in the narrative below each figure. Pretest/posttest change and posttest/sustained effects change are reported. Tabularly, posttest minus pretest change is labeled "POS-PRE". Sustained effect minus posttest is represented by "SE-POS". Sustained effect minus pretest is represented by "SE-PRE".

Posttest-Pretest. Using the 4/93 value as posttest and the 4/92 value as pretest, the average change value was computed for each of the 16 major groups in the study. Table 21 shows this "treatment" effect. All four exited groups, as expected, had change values--positive--greater than 10 NCE points, as did Total Math-Basic for all three groups combined (TOTALMB).

Evaluation sample groups had modest gains (RA, MB, MA) or negative values (RB). Served groups all had positive change values. These values were, uniformly, more positive than those for evaluation sample groups.

Total group (most influenced by the exited group) change values are all positive, but only the TOTALMB group approximates change as was observed for the exited groups.

Sustained Effect-Posttest. Short-term sustained effect (SE) change was evaluated by using the 4/94 SE value minus the 4/93 posttest value. Table 22 shows this "short-term" retention effect. All four exit groups have negative change values, the most significant being the MB = -8.0; i.e., from posttest to SE measurement about 8 NCE points were lost with respect to Math-Basic for the exit group.

Evaluation sample groups all had positive change values (i.e., relatively, these groups "grew" during the second year of treatment). The same was not true for all four served groups. Only SERVEDRB "change" is positive; SERVEDMB lost more than 3 NCEs. Regarding total groups, all four had negative change values, due to the exited group influence.

Sustained Effect-Pretest. Table 23 presents the results for "long-term" retention effect, where the change value was calculated by subtracting the 4/92 pretest value from the 4/94 sustained effect value. Most calculated change values reported in Table 23 are positive; i.e., regardless of study group membership, across the two-year interval NCE change was positive. Only SERVEDMB and SERVEDMA have negative change values.

The exited groups had the highest change values: RB = 10.6, RA = 10.8, MB = 9.7, and MA = 8.1. For the two reading skill areas, served groups had larger change values than did evaluation sample groups. The opposite was true for the math skill areas.

Individual Pupil Change

Of interest is the percent of each of the 16 study groups which had positive change values for each of the three major research questions. Table 24 is a summary of this information.

From this table it is evident that "exit" groups are most likely to show severe drop-off, comparing posttest-pretest to sustained effect-posttest change. For example, the exited group in the Math-Basic skill area for posttest-pretest showed 95.7% of the pupils with positive change. But for sustained effect-posttest, this value dropped to 25.4% positive change. Or, of the 964 pupils in this group, only about 245 scored higher on the 4/94 measurement than on the 4/93 measurement.

In contrast, the evaluation sample groups increased the percent in three of the four skill areas. The served groups decreased for all four groups.

Positive change percents for sustained effects-pretest observations range from a low of 44.4 (SERVEDMB) to a high of 79.5 (EXITEDRB).

Discussion

Application of the five eligibility criteria to the 1992-93 PIF dataset (N=4,031) produced an analysis dataset with 1,936 reading cases and 2,542 math cases. Thus, all analysis cases were: (a) on the 1992-93 PIF file; (b) in grades 2-7 during the 1992-93 school year; (c) in the 1992-93 evaluation sample; (d) promoted to the next grade for the 1993-94 school year; and (e) tested in all three measurement periods (4/92, 4/93, and 4/94).

"Total" statistics reported are weighted heavily toward "evaluation" group membership for the skill area Reading: N_{RB}=780; N_{RA}=810 (see Table 4).

Total statistics reported for Math are--in contrast--most heavily weighted by "exit" group membership; N_{MB}=964; N_{MA}=983. Recognizing that exited groups do not receive second-year treatment, it is not surprising that "total" groups Math-Basic and -Advanced show a second-year NCE decline similar to that observed for exited groups, nor is it remarkable that exit groups--in general--themselves exhibit a marked second-year decline.

Exited groups, by definition, had the highest posttest-pretest positive change, greater than 10 NCE units in all cases: RB = 14.0; RA = 16.1; MB = 17.7; MA = 13.7. Exited groups also had the most negative sustained effect-posttest change: RB = -3.4; RA = -5.4; MB = -8.0; MA = -5.6; e.g., about 45% of the MB change pretest to posttest disappeared posttest to sustained effect.

On the other hand, evaluation sample groups showed positive change during the second year of treatment. Although change for these groups is not as impressive as for exited groups, positive change does appear to be realistic and particularly likely during the second treatment year.

The comparison of pretest and sustained-effect change reinforces this notion. The net effect of treatment across two school years is positive for 15 of the 16 analysis groups (see Table 23; sustained effects scores are--on average--higher than pretest scores). Again, exited groups have the higher change values but positive effect is evident for all groups except for served Math-Basic. Consider that pupils who were selected for service in the second year of the study scored low on the posttest for the previous year. First-year change (pretest to posttest) showed a negative value for the evaluation sample group in Reading-Basic (-0.4).

Regarding change at the individual pupil level, pretest to sustained effect, more than one-half of all pupils had change values greater than zero for 15 of the 16 analysis groups. Over 79% of the exited group in Reading-Basic pupils increased in NCE from pretest to sustained effect. And, over 77% of the exited group in Math-Basic had positive change values.

Summary

The Columbus Public Schools completed the sustained-effects study in accordance with the Chapter 1 federal guidelines. The result of this study will be used in planning future Chapter 1 programs.

In June 1992, the Columbus Public Schools submitted a similar *Sustained Effects Study*. The current study was conducted using the same methodology--for the most part--to that used to report findings from the 1989-91 study. Recommendations from that study could be postulated for the current study:

1. Exited groups, by definition and by observation, will gain more NCEs during their year of exposure to Chapter 1 programming than will any of the remaining other groups.

2. Exited groups will lose more NCEs during year two than will any of the remaining groups.

3. Evaluation groups, again, by definition and observation, will have lower "long-term" (pretest to sustained effect) gain than will be observed for served groups.

Graphs & Tables

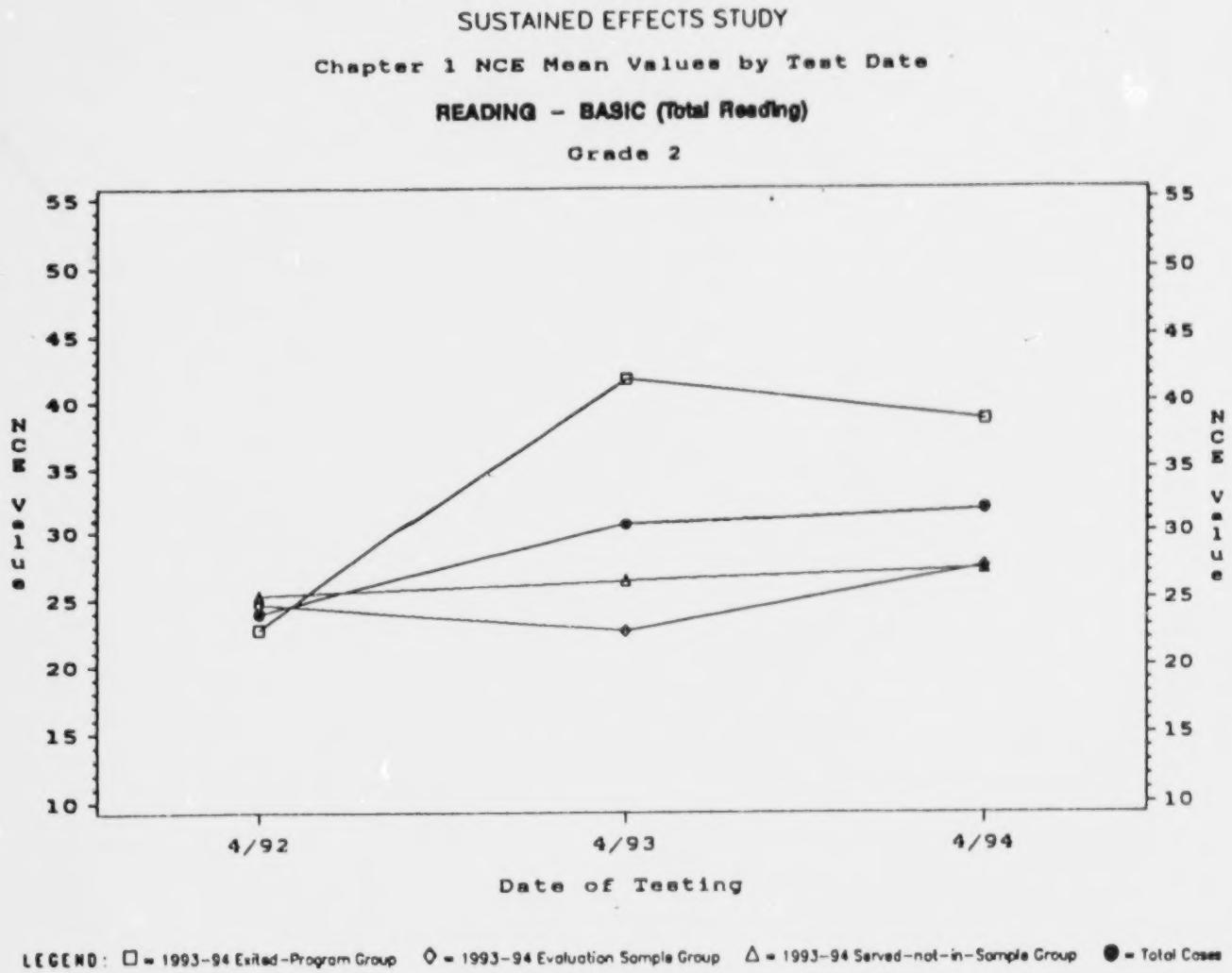

Figure 1. Average NCE for Total Reading pretest (4/92), posttest (4/93), and sustained effects (4/94) scores for second-graders in the 1992-93 Chapter 1 Evaluation Sample.

The average pretest-posttest change in Total Reading for the four groups of pupils was: exited 19.0 (171), evaluation sample -2.0 (225), served 1.1 (27), and total 6.7 (423). The average posttest-sustained effects change for the four groups of pupils was: exited -3.1 (171), evaluation sample 4.8 (225), served 0.9 (27), and total 1.4 (423). The number of pupils appears in parentheses.

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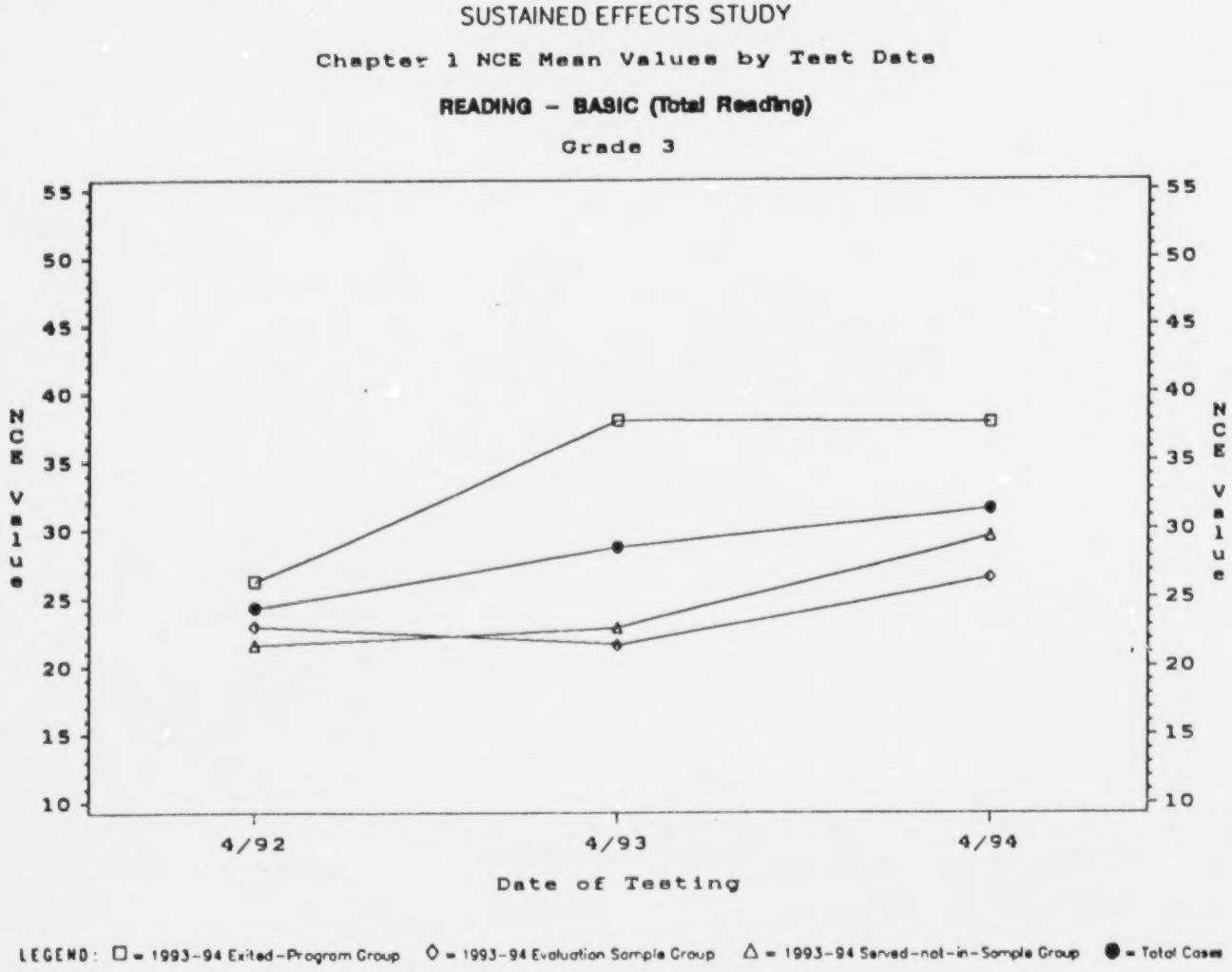

Figure 2. Average NCE for Total Reading pretest (4/92), posttest (4/93), and sustained effects (4/94) scores for third-graders in the 1992-93 Chapter 1 Evaluation Sample.

The average pretest-posttest change in Total Reading for the four groups of pupils was: exited 11.7 (146), evaluation sample -1.4 (176), served 1.3 (16), and total 4.4 (338). The average posttest-sustained effects change for the four groups of pupils was: exited -0.2 (146), evaluation sample 4.9 (176), served 6.7 (16), and total 2.8 (338). The number of pupils appears in parentheses.

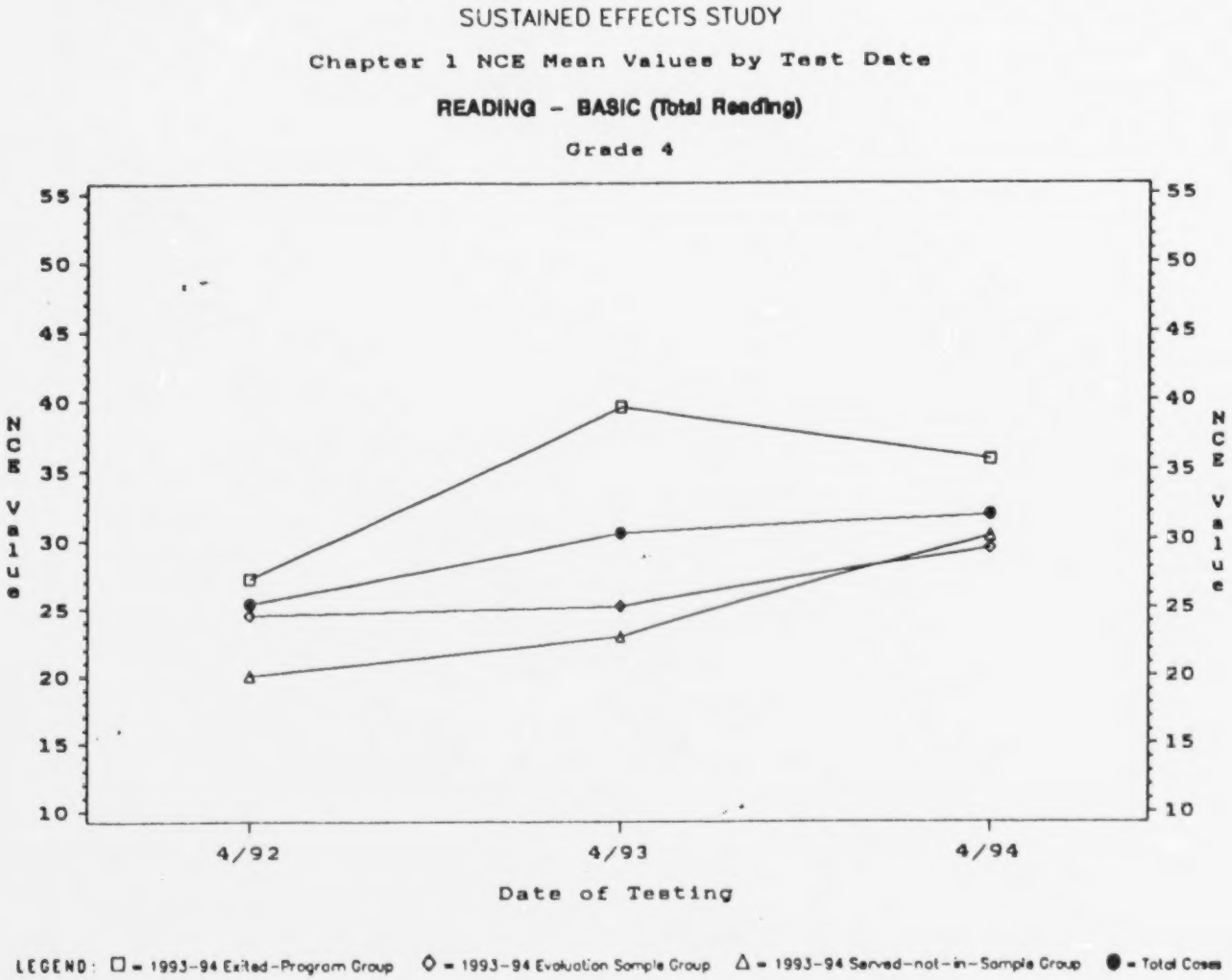

Figure 3. Average NCE for Total Reading pretest (4/92), posttest (4/93), and sustained effects (4/94) scores for fourth-graders in the 1992-93 Chapter 1 Evaluation Sample.

The average pretest-posttest change in Total Reading for the four groups of pupils was: exited 12.4 (70), evaluation sample 0.7 (108), served 2.9 (8), and total 5.2 (186). The average posttest-sustained effects change for the four groups of pupils was: exited -3.8 (70), evaluation sample 4.2 (108), served 7.4 (8), and total 1.3 (186). The number of pupils appears in parentheses.

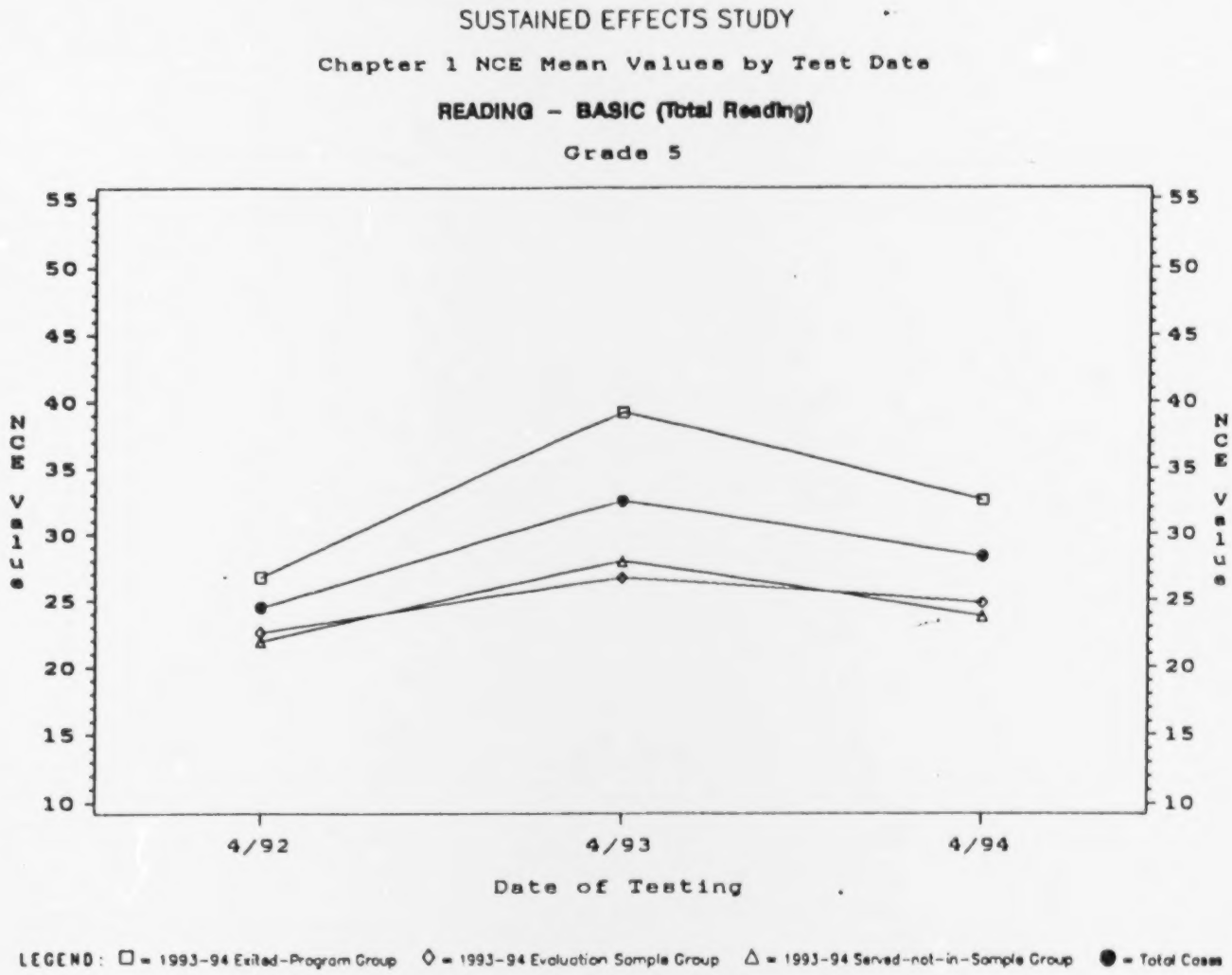

Figure 4. Average NCE for Total Reading pretest (4/92), posttest (4/93), and sustained effects (4/94) scores for fifth-graders in the 1992-93 Chapter 1 Evaluation Sample.

The average pretest-posttest change in Total Reading for the four groups of pupils was: exited 12.5 (66), evaluation sample 4.1 (71), served 6.0 (7), and total 8.0 (144). The average posttest-sustained effects change for the four groups of pupils was: exited -6.7 (66), evaluation sample -1.9 (71), served -4.1 (7), and total -4.2 (144). The number of pupils appears in parentheses.

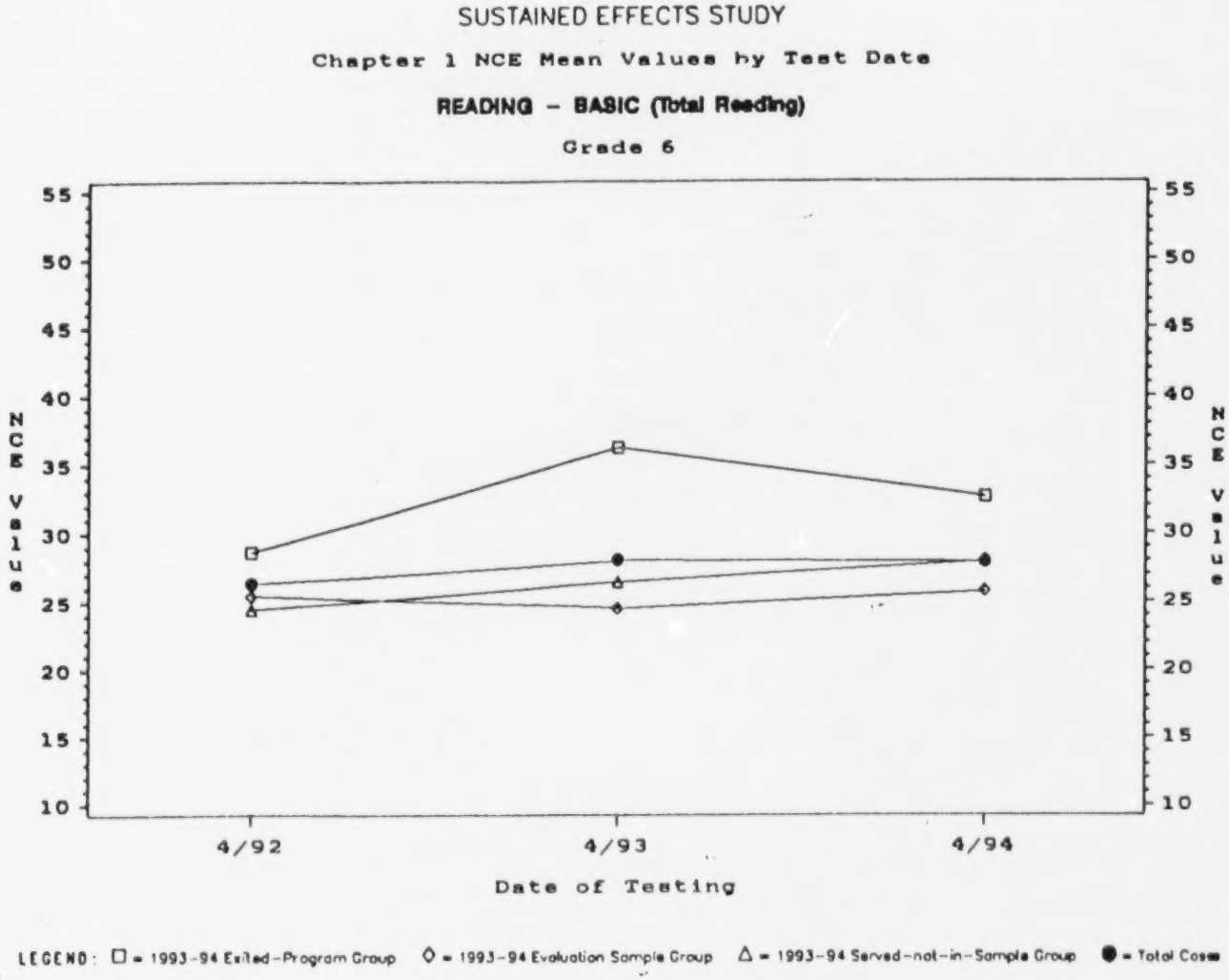

Figure 5. Average NCE for Total Reading pretest (4/92), posttest (4/93), and sustained effects (4/94) scores for sixth-graders in the 1992-93 Chapter 1 Evaluation Sample.

The average pretest-posttest change in Total Reading for the four groups of pupils was: exited 7.6 (47), evaluation sample -0.9 (106), served 2.0 (5), and total 1.7 (158). The average posttest-sustained effects change for the four groups of pupils was: exited -3.6 (47), evaluation sample 1.3 (106), served 1.6 (5), and total -0.1 (158). The number of pupils appears in parentheses.

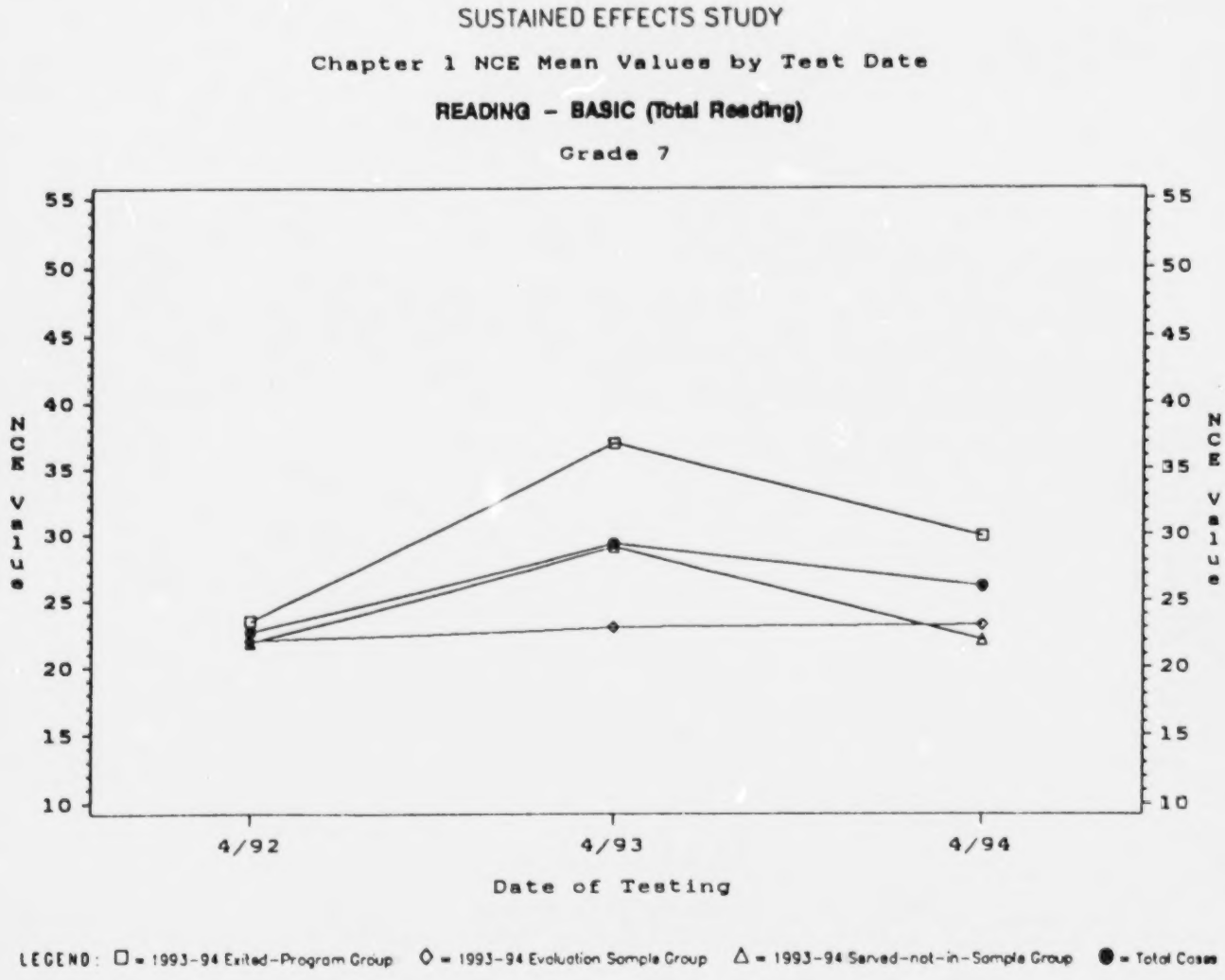

Figure 6. Average NCE for Total Reading pretest (4/92), posttest (4/93), and sustained effects (4/94) scores for seventh-graders in the 1992-93 Chapter 1 Evaluation Sample.

The average pretest-posttest change in Total Reading for the four groups of pupils was: exited 13.5 (77), evaluation sample 1.0 (94), served 7.2 (5), and total 6.7 (176). The average posttest-sustained effects change for the four groups of pupils was: exited -7.0 (77), evaluation sample 0.2 (94), served -7.0 (5), and total -3.2 (176). The number of pupils appears in parentheses.

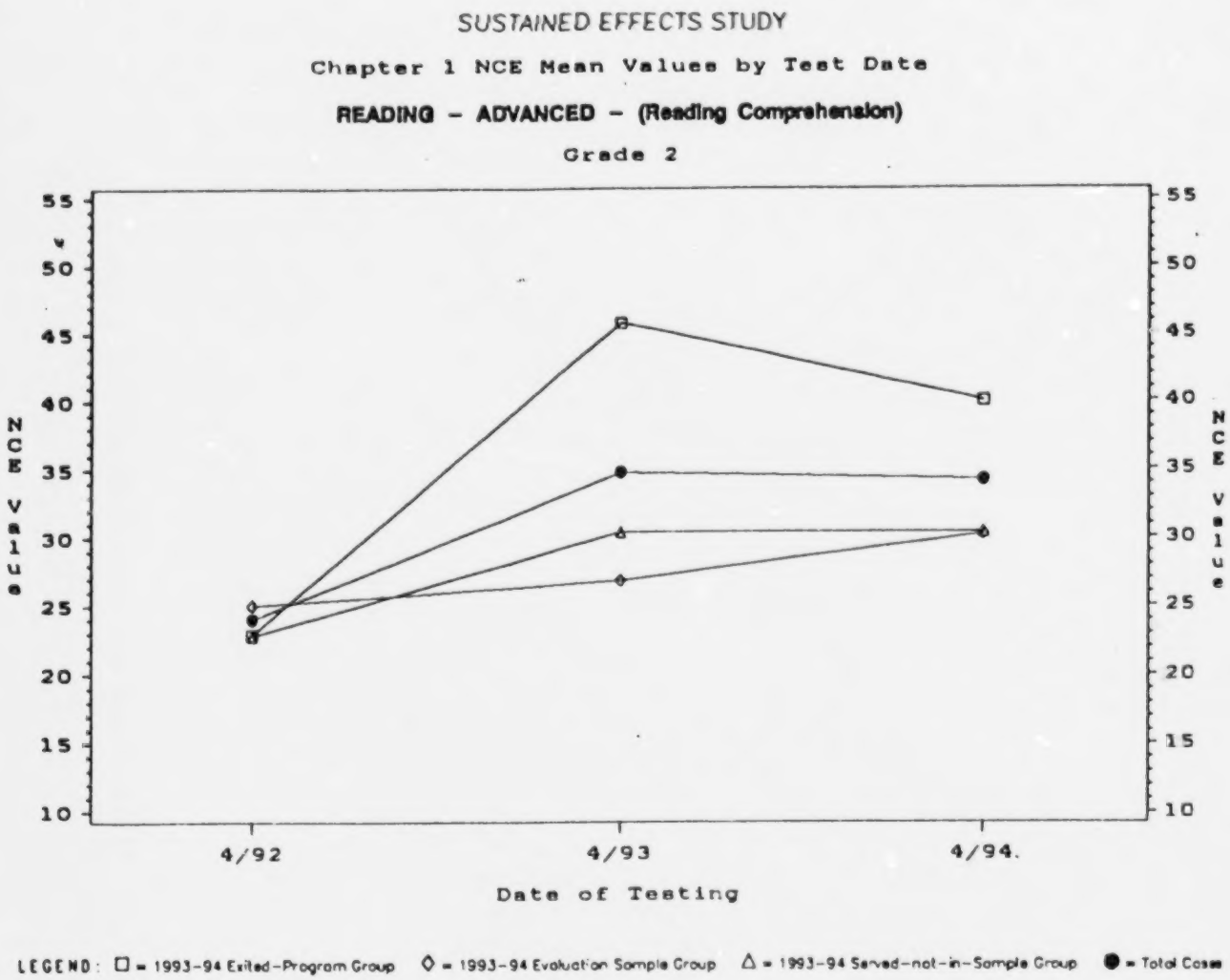

Figure 7. Average NCE for Reading Comprehension pretest (4/92), posttest (4/93), and sustained effects (4/94) scores for second-graders in the 1992-93 Chapter 1 Evaluation Sample.

The average pretest-posttest change in Reading Comprehension for the four groups of pupils was: exited 22.9 (176), evaluation sample 1.8 (231), served 7.5 (26), and total 10.7 (433). The average posttest-sustained effects change for the four groups of pupils was: exited -5.8 (176), evaluation sample 3.4 (231), served 0.0 (26), and total -0.6 (433). The number of pupils appears in parentheses.

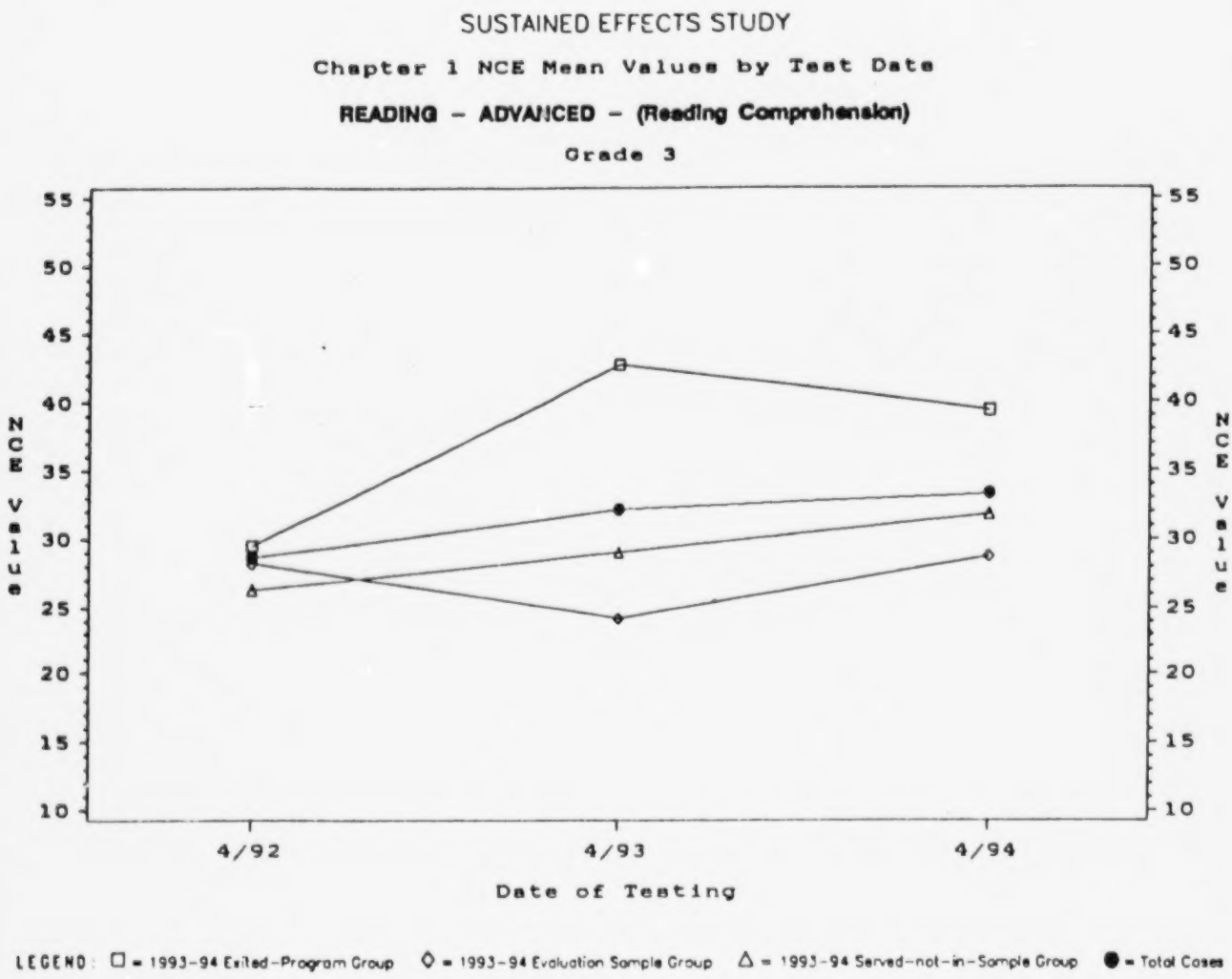

Figure 8. Average NCE for Reading Comprehension pretest (4/92), posttest (4/93), and sustained effects (4/94) scores for third-graders in the 1992-93 Chapter 1 Evaluation Sample.

The average pretest-posttest change in Reading Comprehension for the four groups of pupils was: exited 13.2 (152), evaluation sample -3.9 (197), served 2.7 (15), and total 3.5 (364). The average posttest-sustained effects change for the four groups of pupils was: exited -3.3 (152), evaluation sample 4.5 (197), served 2.8 (15), and total 1.2 (364). The number of pupils appears in parentheses.

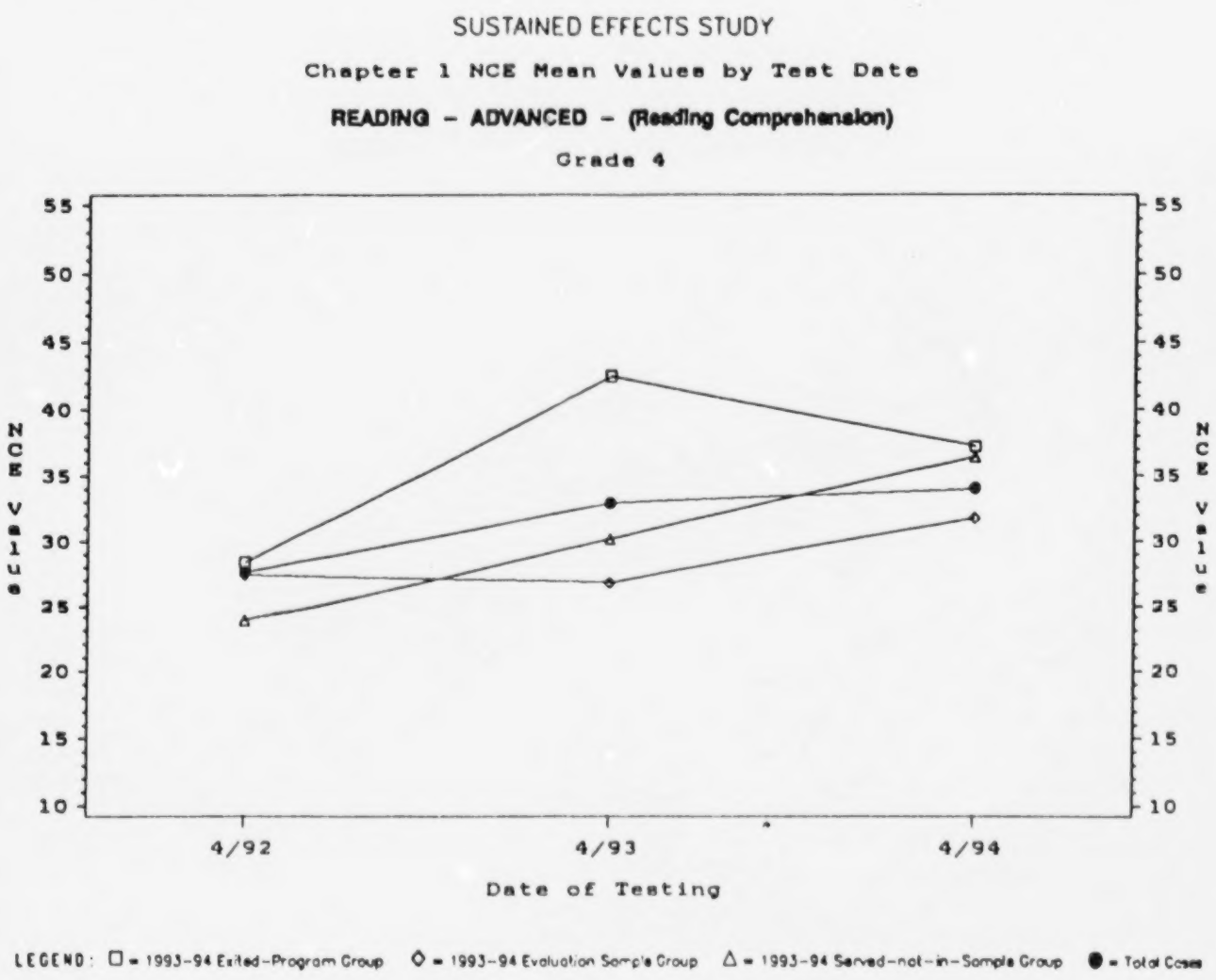

Figure 9. Average NCE for Reading Comprehension pretest (4/92), posttest (4/93), and sustained effects (4/94) scores for fourth-graders in the 1992-93 Chapter 1 Evaluation Sample.

The average pretest-posttest change in Reading Comprehension for the four groups of pupils was: exited 14.1 (71), evaluation sample -0.6 (108), served 6.4 (8), and total 5.3 (187). The average posttest-sustained effects change for the four groups of pupils was: exited -5.3 (71), evaluation sample 5.0 (108), served 6.3 (8), and total 1.1 (187). The number of pupils appears in parentheses.

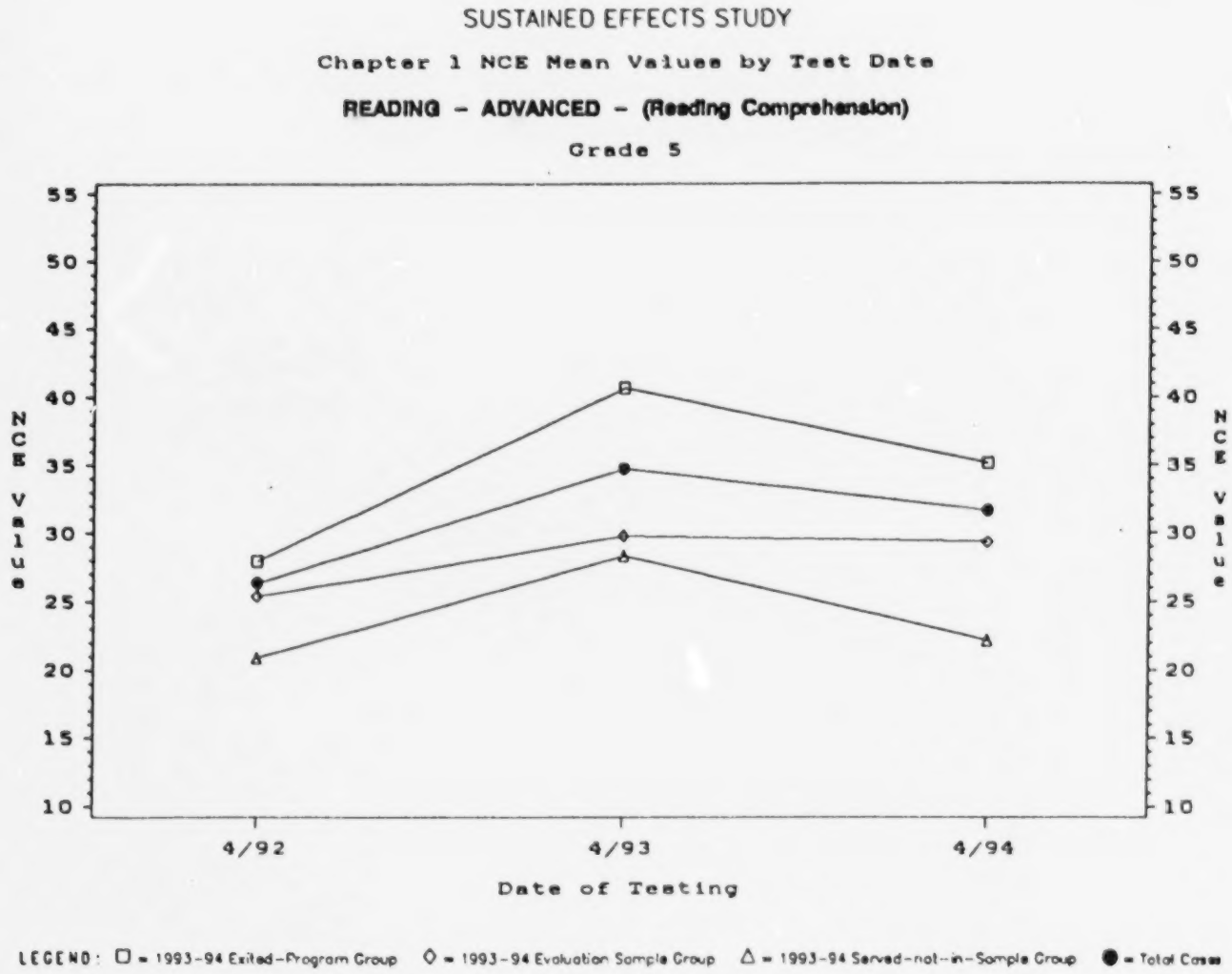

Figure 10. Average NCE for Reading Comprehension pretest (4/92), posttest (4/93), and sustained effects (4/94) scores for fifth-graders in the 1992-93 Chapter 1 Evaluation Sample.

The average pretest-posttest change in Reading Comprehension for the four groups of pupils was: exited 12.7 (67), evaluation sample 4.4 (72), served 7.4 (7), and total 8.4 (146). The average posttest-sustained effects change for the four groups of pupils was: exited -5.6 (67), evaluation sample -0.5 (72), served -6.1 (7), and total -3.1 (146). The number of pupils appears in parentheses.

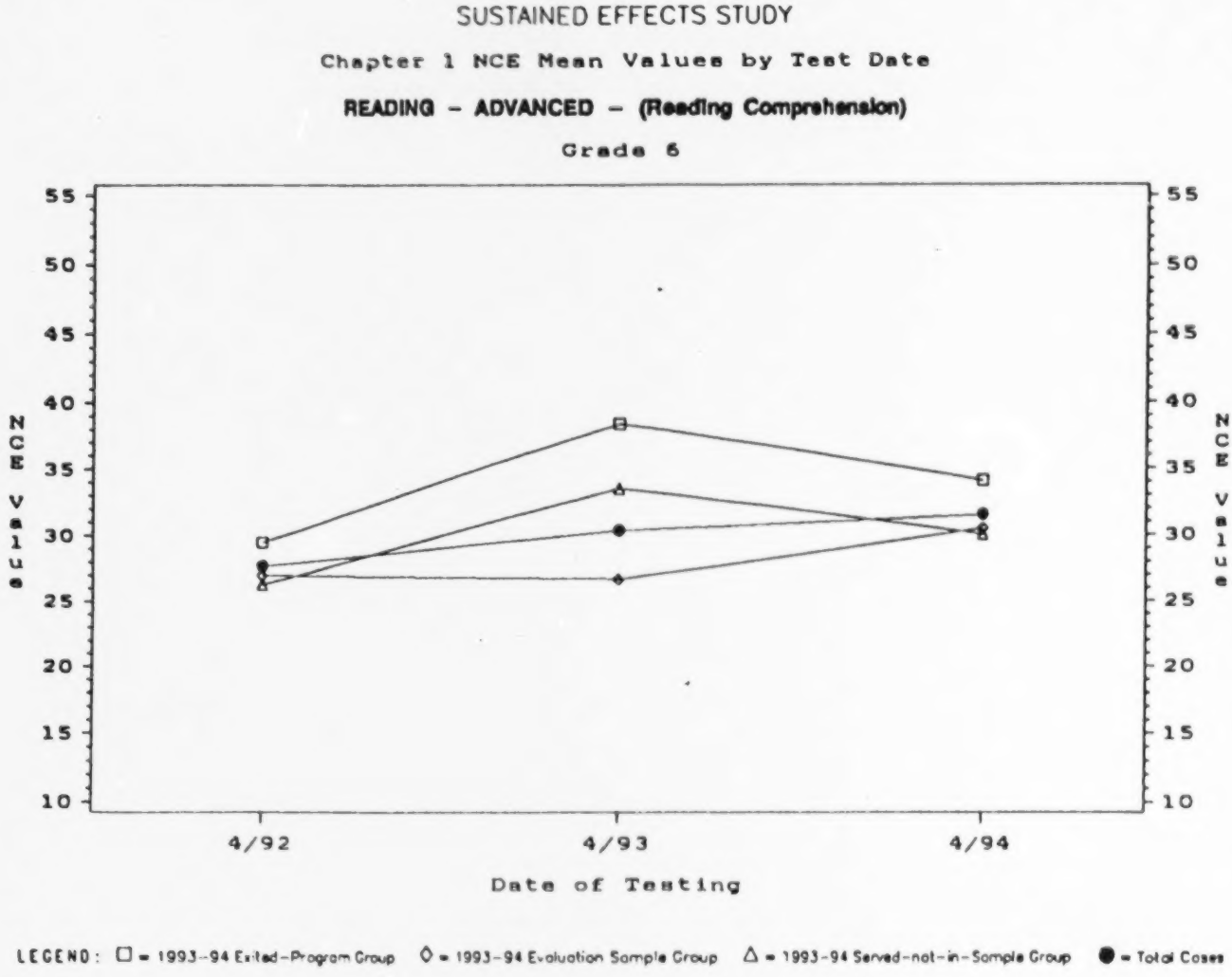

Figure 11. Average NCE for Reading Comprehension pretest (4/92), posttest (4/93), and sustained effects (4/94) scores for sixth-graders in the 1992-93 Chapter 1 Evaluation Sample.

The average pretest-posttest change in Reading Comprehension for the four groups of pupils was: exited 8.9 (47), evaluation sample -0.3 (107), served 7.2 (5), and total 2.7 (159). The average posttest-sustained effects change for the four groups of pupils was: exited -4.3 (47), evaluation sample 3.9 107), served -3.4 (5), and total 1.2 (159). The number of pupils appears in parentheses.

SUSTAINED EFFECTS STUDY

Chapter 1 NCE Mean Values by Test Date

READING - ADVANCED - (Reading Comprehension)

Grade 7

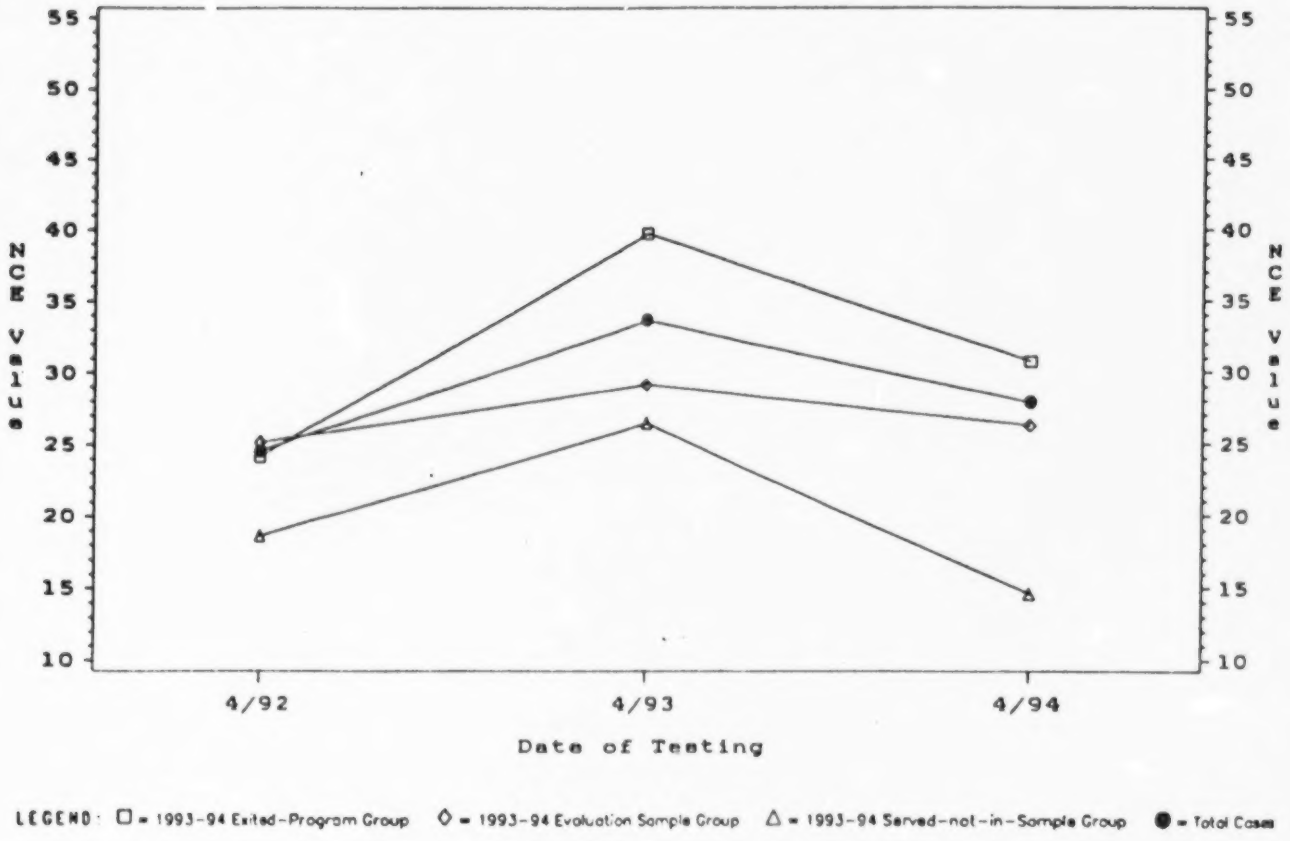

Figure 12. Average NCE for Reading Comprehension pretest (4/92), posttest (4/93), and sustained effects (4/94) scores for seventh-graders in the 1992-93 Chapter 1 Evaluation Sample.

The average pretest-posttest change in Reading Comprehension for the four groups of pupils was: exited 15.6 (77), evaluation sample 4.0 (95), served 7.8 (5), and total 9.1 (177). The average posttest-sustained effects change for the four groups of pupils was: exited -9.0 (77), evaluation sample -2.8 (95), served -11.8 (5), and total -5.8 (177). The number of pupils appears in parentheses.

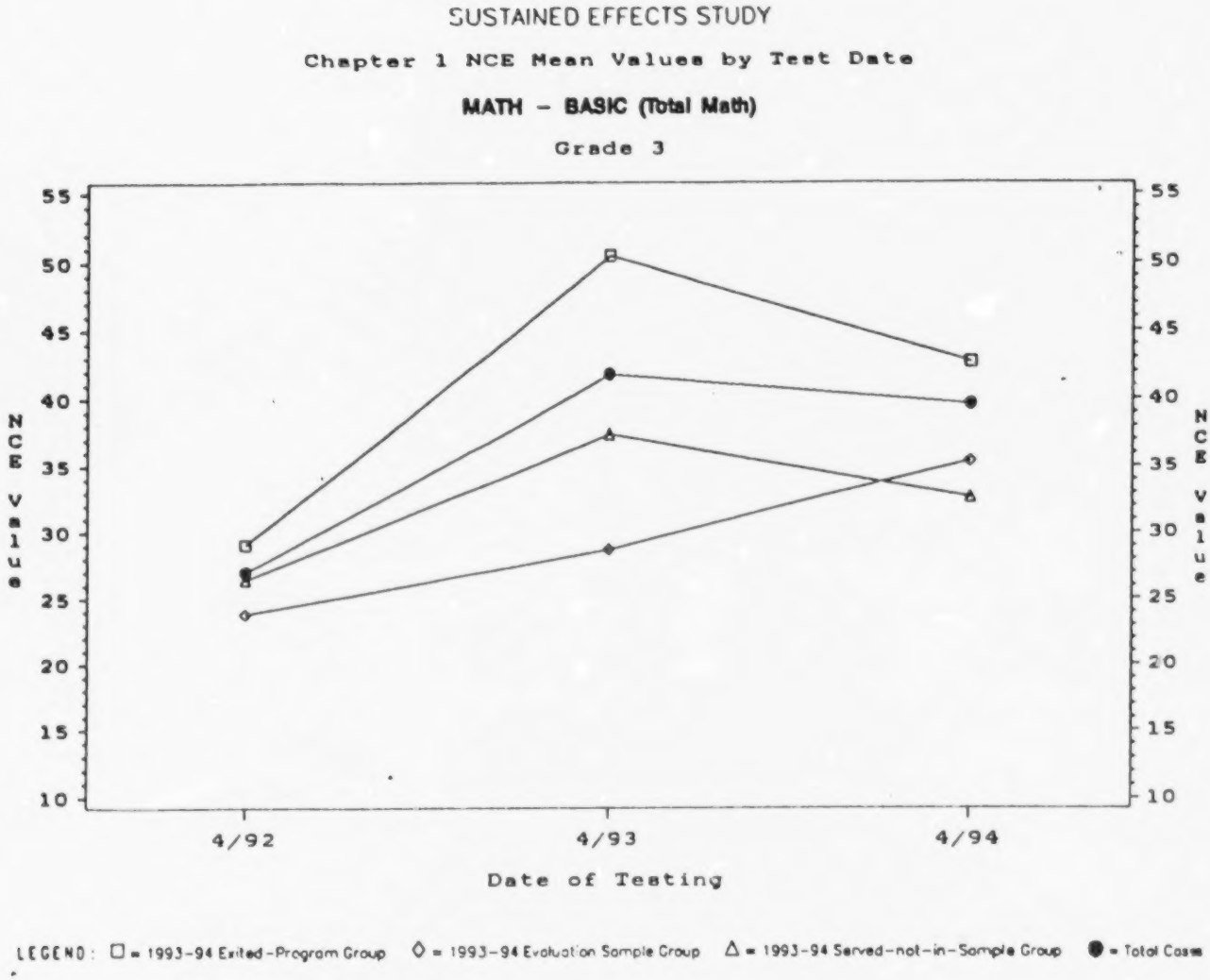

Figure 13. Average NCE for Total Math pretest (4/92), posttest (4/93), and sustained effects (4/94) scores for third-graders in the 1992-93 Chapter 1 Evaluation Sample.

The average pretest-posttest change in Total Math for the four groups of pupils was: exited 21.4 (198), evaluation sample 4.9 (128), served 10.9 (10), and total 14.8 (336). The average posttest-sustained effects change for the four groups of pupils was: exited -7.8 (198), evaluation sample -6.7 (128), served -4.7 (10), and total -2.2 (336). The number of pupils appears in parentheses.

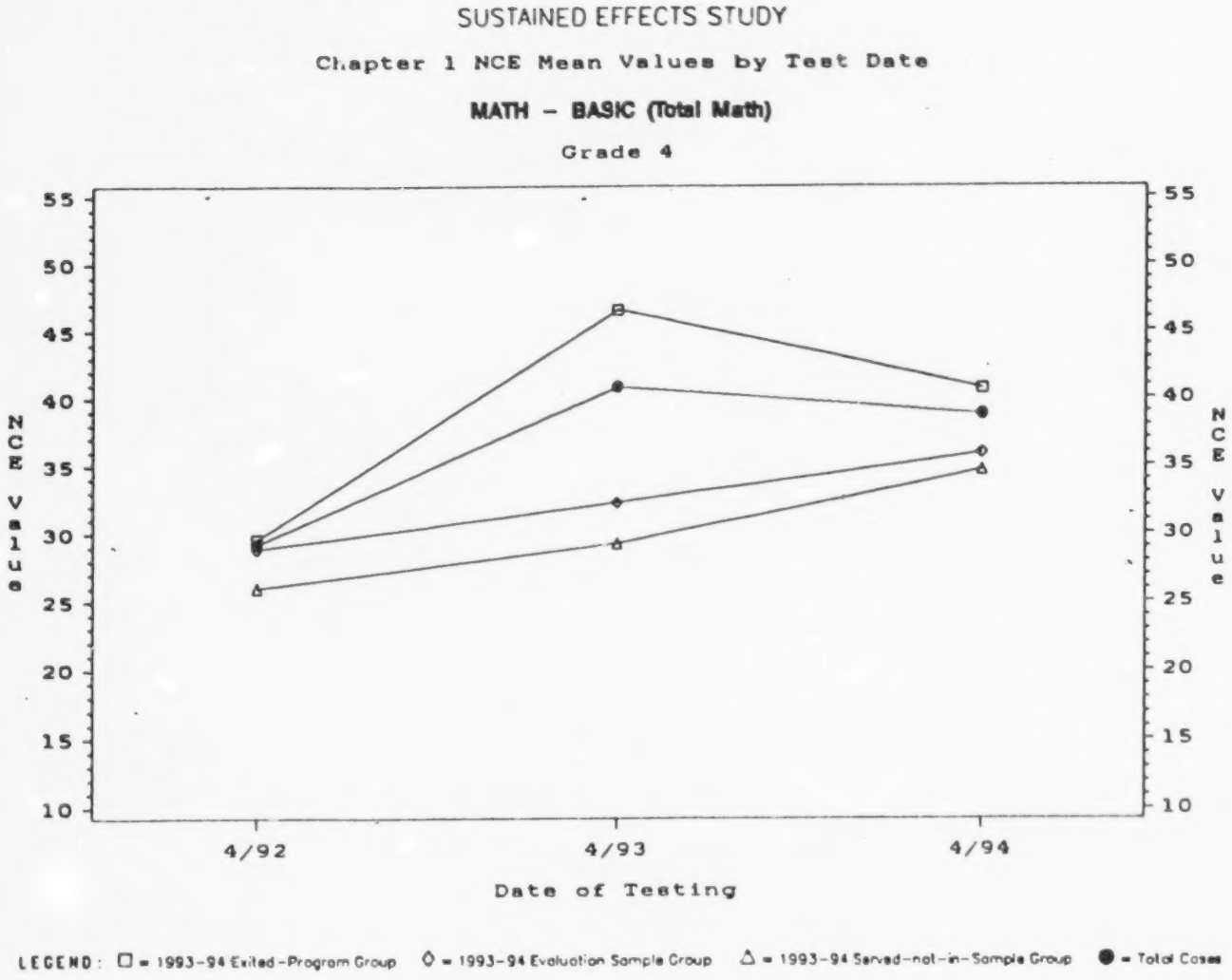

Figure 14. Average NCE for Total Math pretest (4/92), posttest (4/93), and sustained effects (4/94) scores for fourth-graders in the 1992-93 Chapter 1 Evaluation Sample.

The average pretest-posttest change in Total Math for the four groups of pupils was: exited 17.0 (228), evaluation sample 3.4 (141), served 3.3 (8), and total 11.6 (377). The average posttest-sustained effects change for the four groups of pupils was: exited -5.9 (228), evaluation sample 3.6 (141), served 5.4 (8), and total -2.1 (377). The number of pupils appears in parentheses.

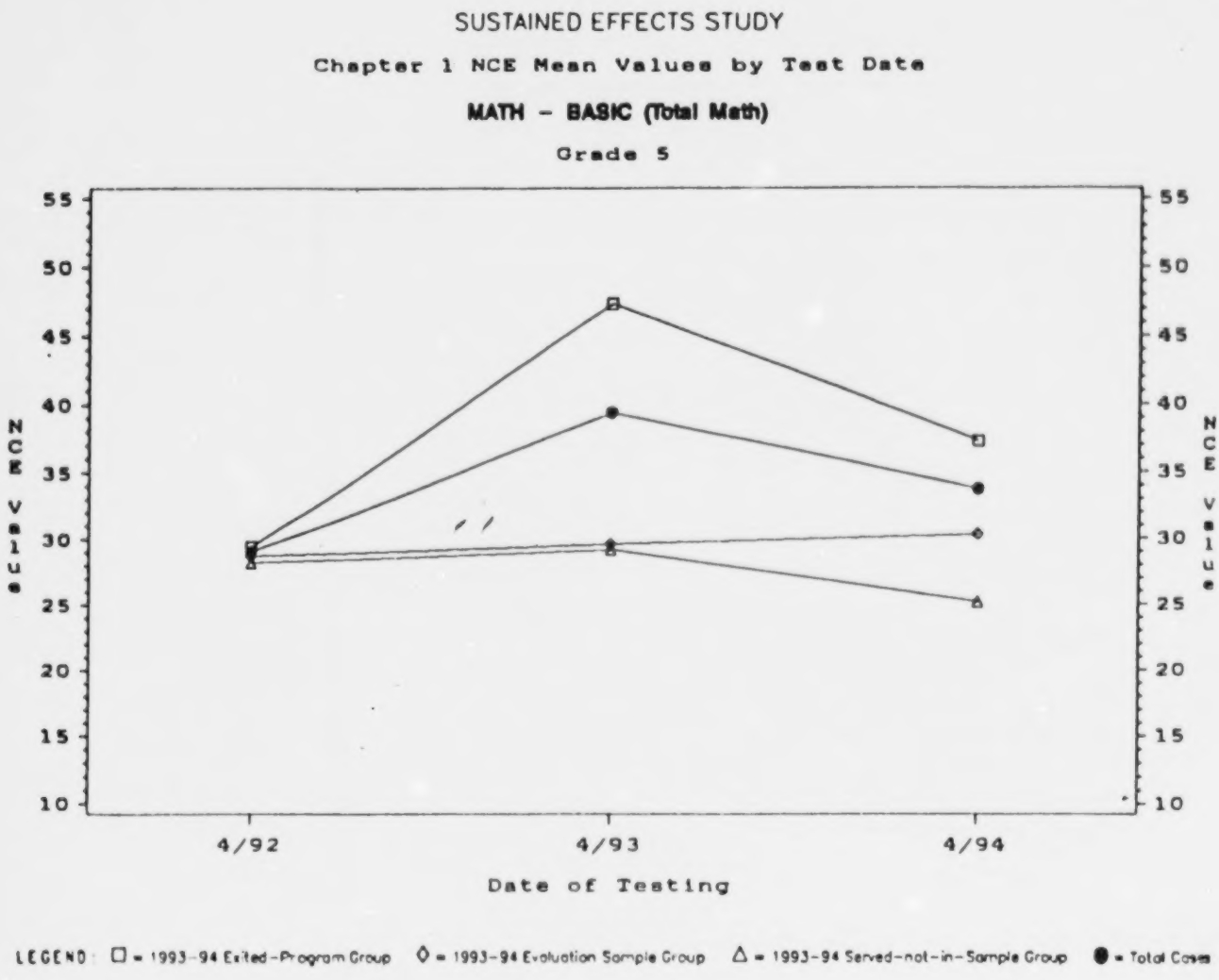

Figure 15. Average NCE for Total Math pretest (4/92), posttest (4/93), and sustained effects (4/94) scores for fifth-graders in the 1992-93 Chapter 1 Evaluation Sample.

The average pretest-posttest change in Total Math for the four groups of pupils was: exited 17.9 (208), evaluation sample -0.9 (136), served 1.0 (33), and total 10.3 (377). The average posttest-sustained effects change for the four groups of pupils was: exited -10.1 (208), evaluation sample 0.8 (136), served -3.9 (33), and total -5.6 (377). The number of pupils appears in parentheses.

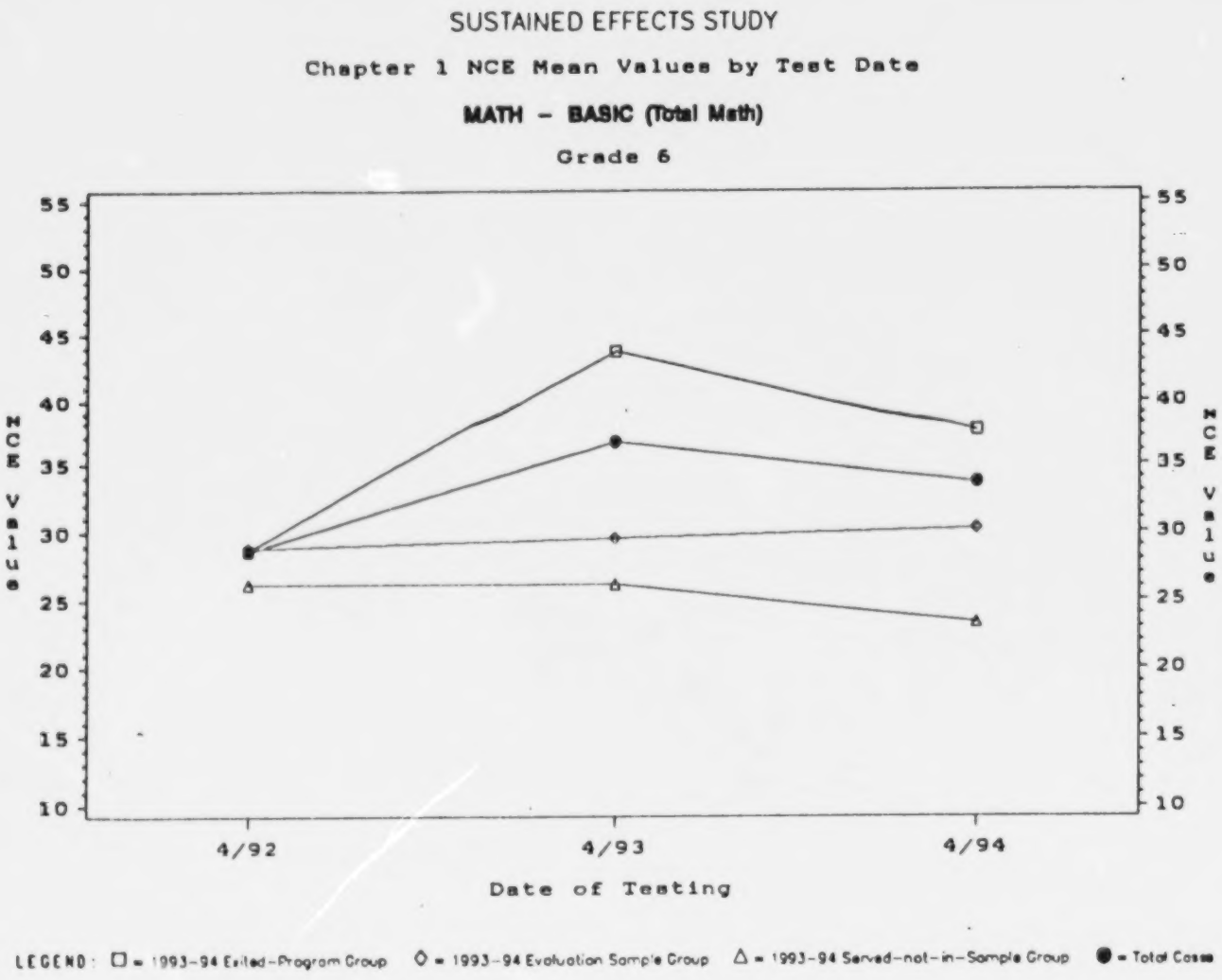

Figure 16. Average NCE for Total Math pretest (4/92), posttest (4/93), and sustained effects (4/94) scores for sixth-graders in the 1992-93 Chapter 1 Evaluation Sample.

The average pretest-posttest change in Total Math for the four groups of pupils was: exited 15.1 (174), evaluation sample 0.8 (153), served 0.0 (15), and total 8.0 (342). The average posttest-sustained effects change for the four groups of pupils was: exited -6.2 (174), evaluation sample 0.7 (153), served -2.9 (15), and total -3.0 (342). The number of pupils appears in parentheses.

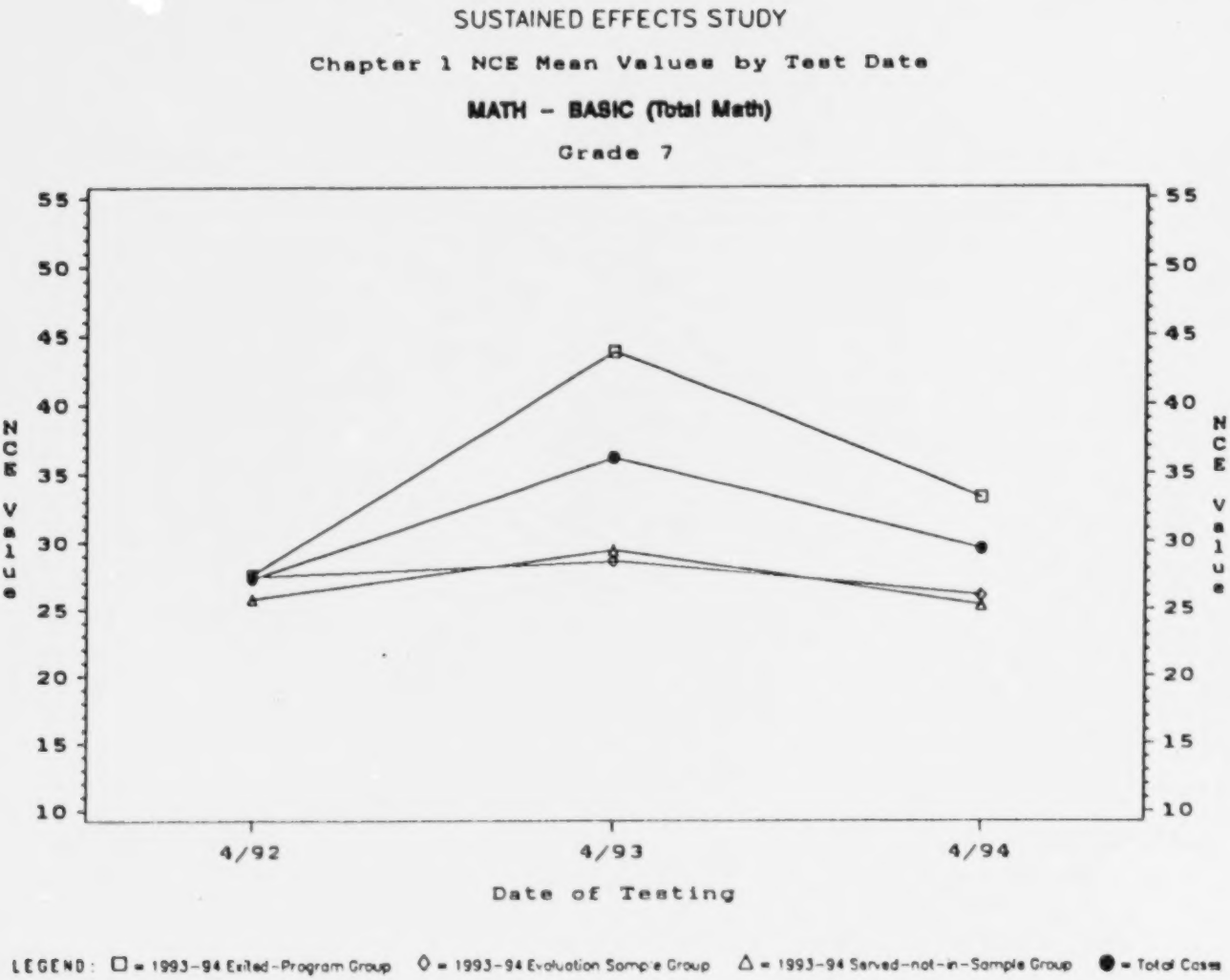

Figure 17. Average NCE for Total Math pretest (4/92), posttest (4/93), and sustained effects (4/94) scores for seventh-graders in the 1992-93 Chapter 1 Evaluation Sample.

The average pretest-posttest change in Total Math for the four groups of pupils was: exited 16.3 (156), evaluation sample 1.2 (123), served 3.6 (40), and total 8.9 (319). The average posttest-sustained effects change for the four groups of pupils was: exited -10.6 (156), evaluation sample -2.6 (123), served -4.1 (40), and total -6.7 (319). The number of pupils appears in parentheses.

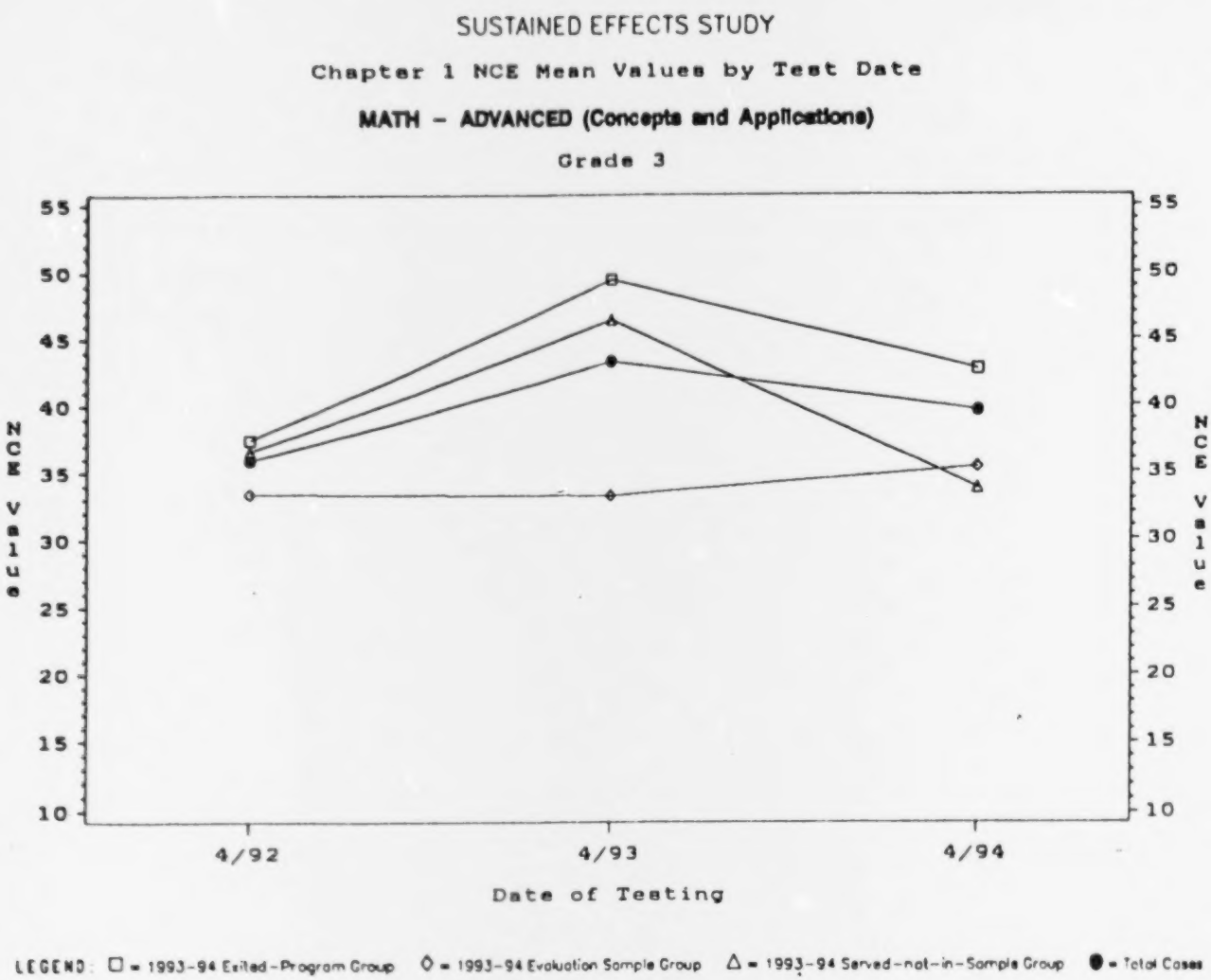

Figure 18. Average NCE for Concepts and Applications pretest (4/92), posttest (4/93), and sustained effects (4/94) scores for third-graders in the 1992-93 Chapter 1 Evaluation Sample.

The average pretest-posttest change in Concepts and Applications for the four groups of pupils was: exited 12.0 (202), evaluation sample -0.1 (129), served 9.9 (15), and total 7.4 (346). The average posttest-sustained effects change for the four groups of pupils was: exited -6.7 (202), evaluation sample 2.2 (129), served -12.7 (15), and total -3.7 (346). The number of pupils appears in parentheses.

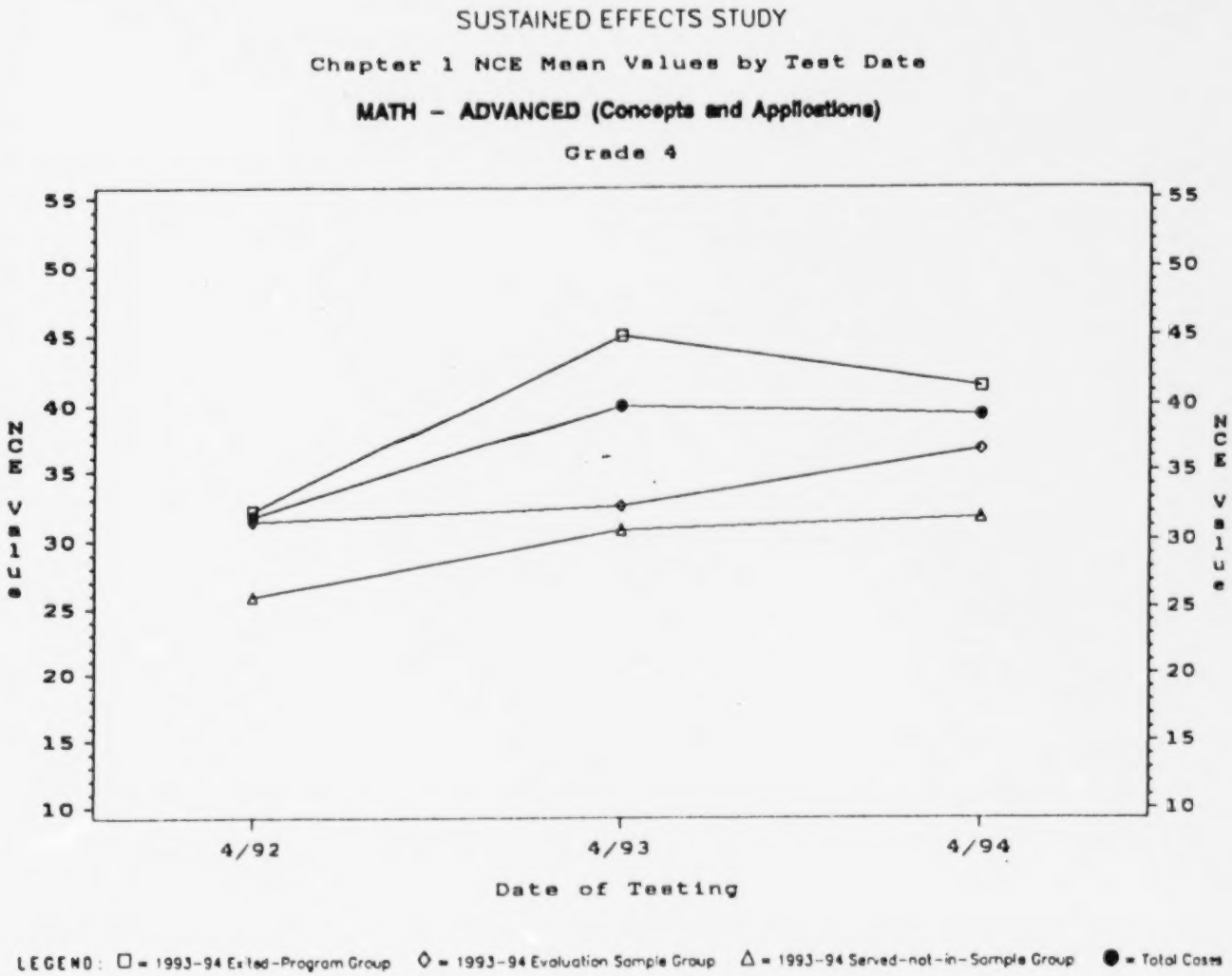

Figure 19. Average NCE for Concepts and Applications pretest (4/92), posttest (4/93), and sustained effects (4/94) scores for fourth-graders in the 1992-93 Chapter 1 Evaluation Sample.

The average pretest-posttest change in Concepts and Applications for the four groups of pupils was: exited 12.9 (228), evaluation sample 1.1 (142), served 4.9 (10), and total 8.3 (380). The average posttest-sustained effects change for the four groups of pupils was: exited -3.7 (228), evaluation sample 4.1 (142), served 0.9 (10), and total -0.7 (380). The number of pupils appears in parentheses.

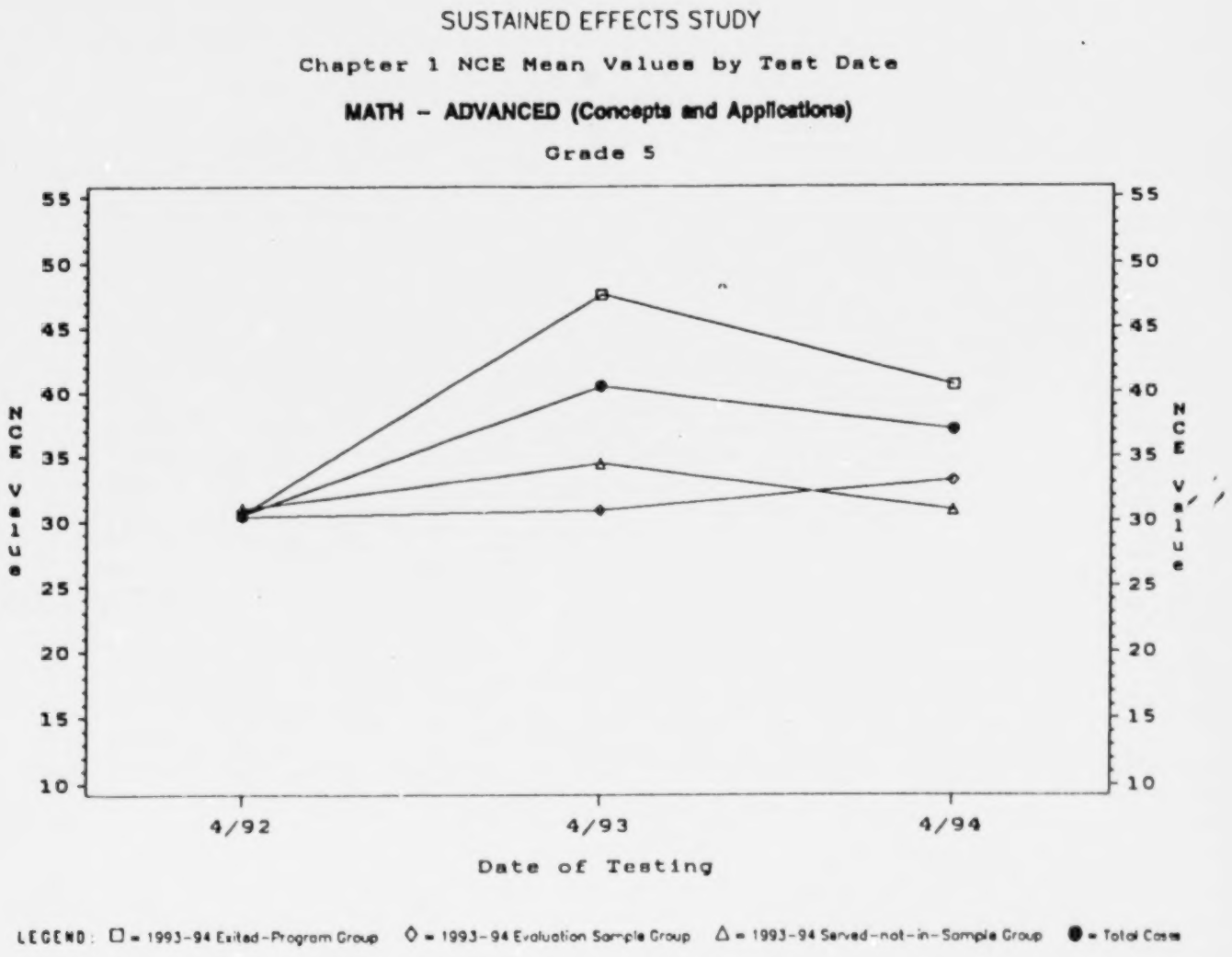

Figure 20. Average NCE for Concepts and Applications pretest (4/92), posttest (4/93), and sustained effects (4/94) scores for fifth-graders in the 1992-93 Chapter 1 Evaluation Sample.

The average pretest-posttest change in Concepts and Applications for the four groups of pupils was: exited 17.1 (213), evaluation sample 0.5 (136), served 3.5 (35), and total 10.0 (384). The average posttest-sustained effects change for the four groups of pupils was: exited -7.1 (213), evaluation sample 2.3 (136), served -3.6 (35), and total -3.4 (384). The number of pupils appears in parentheses.

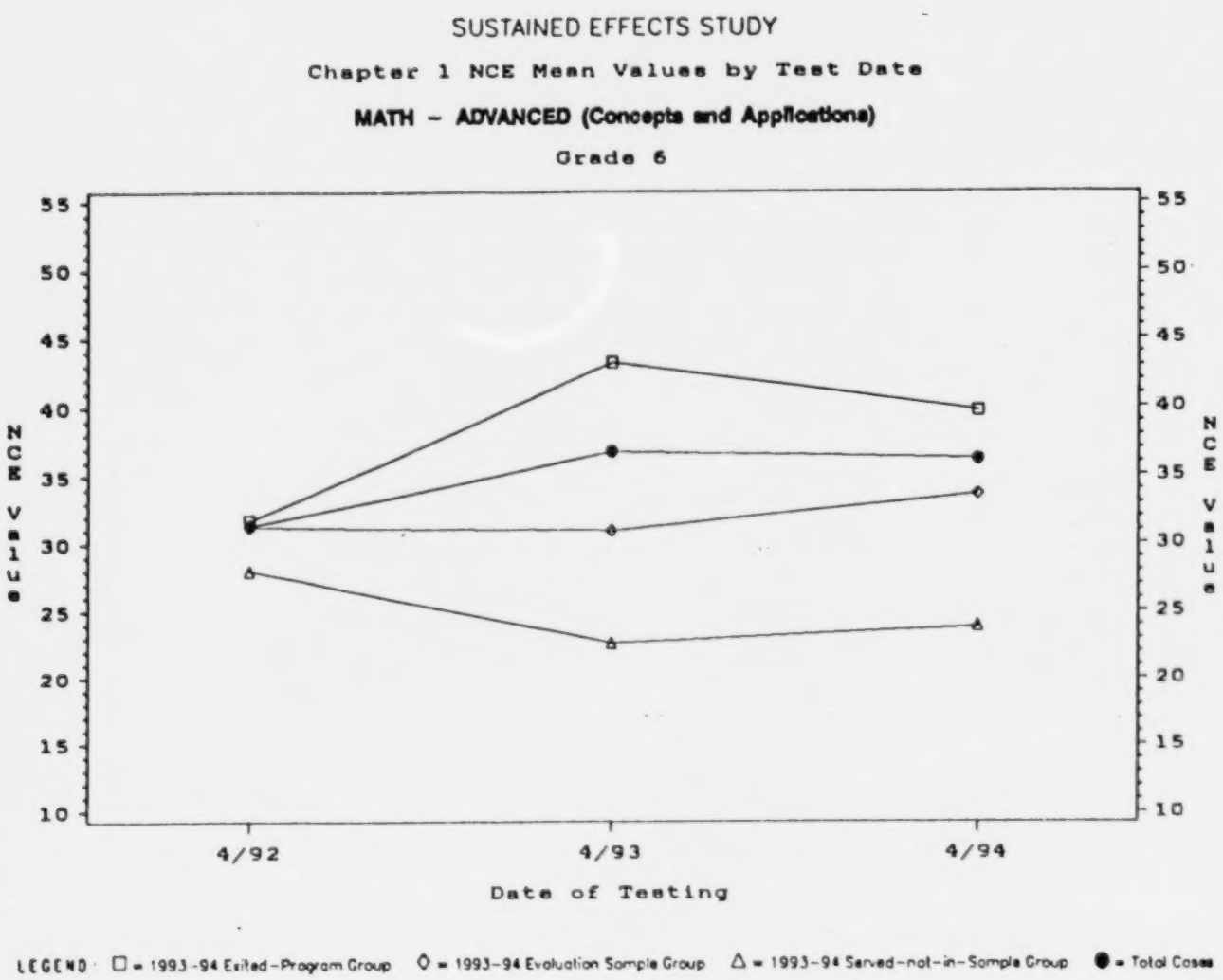

Figure 21. Average NCE for Concepts and Applications pretest (4/92), posttest (4/93), and sustained effects (4/94) scores for sixth-graders in the 1992-93 Chapter 1 Evaluation Sample.

The average pretest-posttest change in Concepts and Applications for the four groups of pupils was: exited 11.5 (180), evaluation sample -0.3 (153), served -5.4 (20), and total 5.4 (353). The average posttest-sustained effects change for the four groups of pupils was: exited -3.5 (180), evaluation sample 2.7 (153), served 1.3 (20), and total -0.6 (353). The number of pupils appears in parentheses.

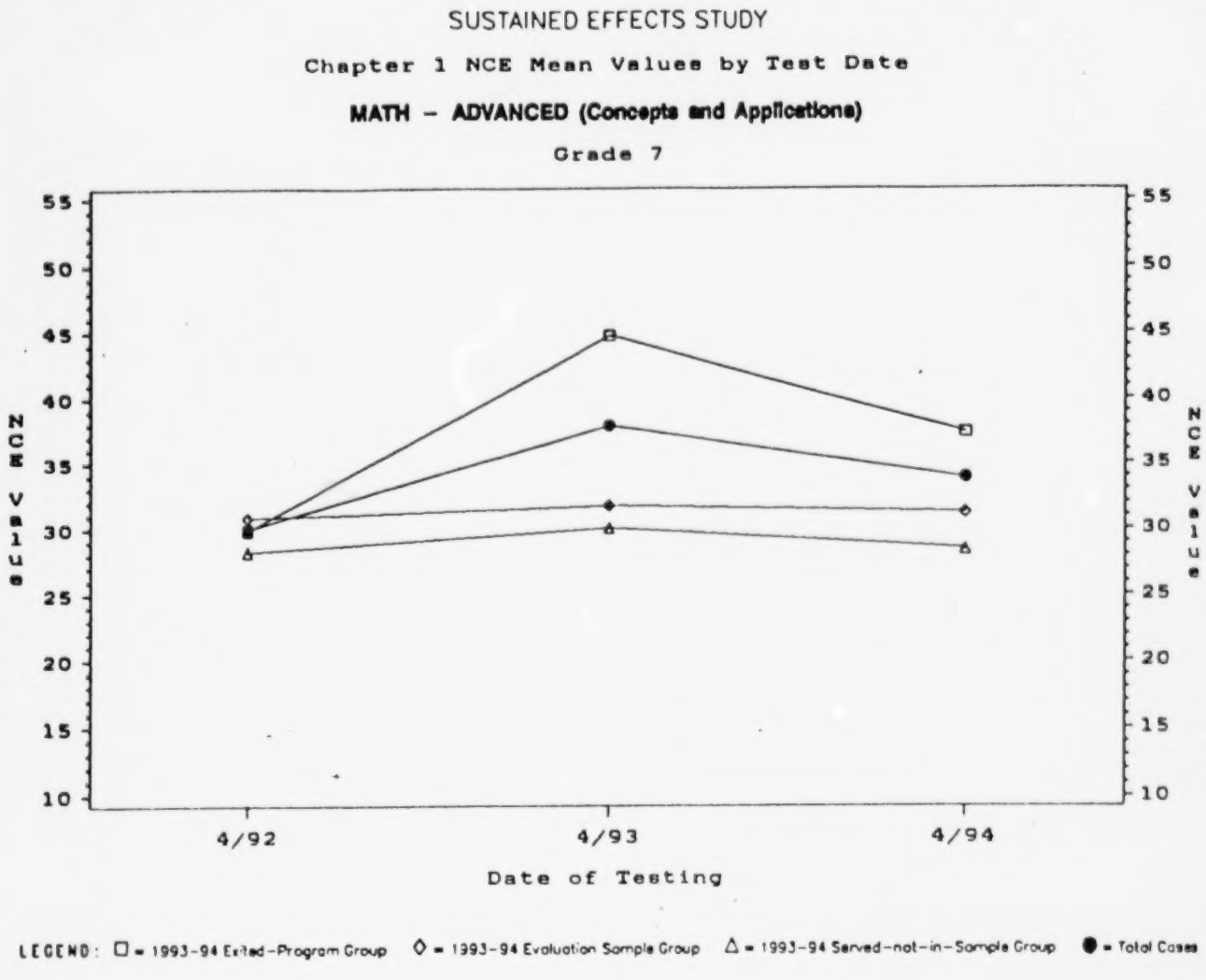

Figure 22. Average NCE for Concepts and Applications pretest (4/92), posttest (4/93), and sustained effects (4/94) scores for seventh-graders in the 1992-93 Chapter 1 Evaluation Sample.

The average pretest-posttest change in Concepts and Applications for the four groups of pupils was: exited 14.9 (160), evaluation sample 0.9 (123), served 1.8 (44), and total 7.9 (327). The average posttest-sustained effects change for the four groups of pupils was: exited -7.4 (160), evaluation sample -0.5 (123), served -1.7 (44), and total -4.0 (327). The number of pupils appears in parentheses.

Table 5

Sustained Effects Study
Area: Reading-Basic (Total Reading)
Group: EXITED
NCE Counts, Means and Standard Deviations
by Test Date and Change Values

1992-93 Grade

Testing[a] Points	2 N	2 MEAN	2 SD	3 N	3 MEAN	3 SD	4 N	4 MEAN	4 SD	5 N	5 MEAN	5 SD	6 N	6 MEAN	6 SD	7 N	7 MEAN	7 SD
4 / 92 PRE	171	22.7	13.1	146	26.2	11.3	70	27.1	9.3	66	26.7	8.6	47	28.6	7.1	77	23.4	8.6
4 / 93 POS	171	41.7	14.9	146	37.9	14.4	70	39.5	9.3	66	39.2	7.0	47	36.2	9.3	77	36.9	9.8
4 / 94 SE	171	38.6	16.1	146	37.8	12.6	70	35.7	9.7	66	32.5	10.3	47	32.6	9.9	77	29.8	11.8
POS-PRE[b]	171	19.0	12.4	146	11.7	12.7	70	12.4	8.6	66	12.5	7.7	47	7.6	8.8	77	13.5	9.1
SE-POS[b]	171	-3.1	14.0	146	-0.2	11.8	70	-3.8	9.0	66	-6.7	8.6	47	-3.6	10.9	77	-7.0	9.8
SE-PRE[b]	171	16.0	14.8	146	11.6	11.9	70	8.6	10.3	66	5.8	9.1	47	4.0	8.5	77	6.4	11.8

Table 6

Sustained Effects Study
Area: Reading-Basic (Total Reading)
Group: EVALUATION SAMPLE
NCE Counts, Means and Standard Deviations
by Test Date and Change Values

1992-93 Grade

Testing[a] Points	2 N	2 MEAN	2 SD	3 N	3 MEAN	3 SD	4 N	4 MEAN	4 SD	5 N	5 MEAN	5 SD	6 N	6 MEAN	6 SD	7 N	7 MEAN	7 SD
4 / 92 PRE	225	24.6	15.5	176	22.9	9.7	108	24.4	10.7	71	22.5	9.1	106	25.4	7.5	94	21.9	9.0
4 / 93 POS	225	22.6	12.4	176	21.5	12.4	108	25.1	9.7	71	26.6	9.0	106	24.4	9.0	94	22.9	10.8
4 / 94 SE	225	27.4	14.3	176	26.4	11.8	108	29.3	10.5	71	24.7	11.3	106	25.7	10.5	94	23.1	9.7
POS-PRE[b]	225	-2.0	11.3	176	-1.4	10.9	108	0.7	11.5	71	4.1	8.2	106	-0.9	7.6	94	1.0	9.0
SE-POS[b]	225	4.8	11.3	176	4.9	10.5	108	4.2	10.2	71	-1.9	9.5	106	1.3	10.6	94	0.2	10.6
SE-PRE[b]	225	2.8	14.4	176	3.5	11.0	108	4.9	11.2	71	2.2	11.1	106	0.4	9.0	94	1.2	9.8

[a]PRE=Pretest, POS=Posttest, SE=Sustained Effect, POS-PRE=Posttest minus Pretest, SE-POS=Sustained Effect minus Posttest, SE-PRE=Sustained Effect minus Pretest

[b]Rounding caused some change values to differ from expected values.

Table 7

Sustained Effects Study
Area: Reading-Basic (Total Reading)
Group: SERVED
NCE Counts, Means and Standard Deviations
by Test Date and Change Values

1992-93 Grade

Testing[a] Points	2 N	2 MEAN	2 SD	3 N	3 MEAN	3 SD	4 N	4 MEAN	4 SD	5 N	5 MEAN	5 SD	6 N	6 MEAN	6 SD	7 N	7 MEAN	7 SD
4 / 92 PRE	27	25.2	15.5	16	21.5	9.8	8	20.0	11.3	7	21.9	9.5	5	24.4	3.6	5	21.8	10.0
4 / 93 POS	27	26 4	11.2	16	22.8	12.5	8	22.9	11.7	7	27.9	9.8	5	26.4	10.2	5	29.0	2.9
4 / 94 SE	27	27.2	16.0	16	29.5	14.4	8	30.3	15.2	7	23.7	10.1	5	28.0	13.0	5	22.0	2.6
POS-PRE[b]	27	1.1	13.3	16	1.3	11.8	8	2.9	11.0	7	6.0	9.0	5	2.0	8.3	5	7.2	8.3
SE-POS[b]	27	0.9	13.9	16	6.7	16.6	8	7.4	13.1	7	-4.1	7.6	5	1.6	14.1	5	-7.0	2.1
SE-PRE[b]	27	2.0	19.1	16	8.0	13.6	8	10.3	11.9	7	1.9	14.7	5	3.6	10.0	5	0.2	8.5

Table 8

Sustained Effects Study
Area: Reading-Basic (Total Reading)
Group: TOTAL
NCE Counts, Means and Standard Deviations
by Test Date and Change Values

1992-93 Grade

Testing[a] Points	2 N	2 MEAN	2 SD	3 N	3 MEAN	3 SD	4 N	4 MEAN	4 SD	5 N	5 MEAN	5 SD	6 N	6 MEAN	6 SD	7 N	7 MEAN	7 SD
4 / 92 PRE	423	23.9	14.6	338	24.3	10.5	186	25.3	10.3	144	24.4	9.1	158	26.3	7.4	176	22.6	8.9
4 / 93 POS	423	30.6	16.3	338	28.7	15.6	186	30.4	11.9	144	32.4	10.3	158	28.0	10.5	176	29.2	12.3
4 / 94 SE	423	31.9	16.1	338	31.5	13.4	186	31.8	10.8	144	28.2	11.4	158	27.9	10.8	176	26.0	11.1
POS-PRE[b]	423	6.7	15.6	338	4.4	13.4	186	5.2	11.8	144	8.0	9.0	158	1.7	8.9	176	6.7	10.9
SE-POS[b]	423	1.4	13.2	338	2.8	11.7	186	1.3	10.7	144	-4.2	9.2	158	-0.1	11.0	176	-3.2	10.7
SE-PRE[b]	423	8.1	16.2	338	7.2	12.1	186	6.5	11.0	144	3.8	10.5	158	1.6	9.0	176	3.5	10.9

[a]PRE=Pretest, POS=Posttest, SE=Sustained Effect, POS-PRE=Posttest minus Pretest, SE-POS=Sustained Effect minus Posttest, SE-PRE=Sustained Effect minus Pretest

[b]Rounding caused some change values to differ from expected values.

Table 9

Sustained Effects Study
Area: Reading-Advanced (Reading Comprehension)
Group: EXITED
NCE Counts, Means and Standard Deviations
by Test Date and Change Values

1992-93 Grade

Testing[a] Points	2			3			4			5			6			7		
	N	MEAN	SD	N	MEAN	SD	N	MEAN	SD	N	MEAN	SD	N	MEAN	SD	N	MEAN	SD
4 / 92 PRE	176	22.8	15.5	152	29.5	11.6	71	28.3	9.8	67	27.9	9.9	47	29.4	11.7	77	24.1	13.8
4 / 93 POS	176	45.7	16.6	152	42.7	15.3	71	42.4	9.6	67	40.6	7.6	47	38.3	9.7	77	39.7	10.1
4 / 94 SE	176	39.9	17.9	152	39.3	13.2	71	37.2	11.1	67	35.1	11.4	47	34.0	12.3	77	30.7	13.9
POS-PRE[b]	176	22.9	15.3	152	13.2	15.2	71	14.1	9.3	67	12.7	8.6	47	8.9	11.8	77	15.6	14.0
SE-POS[b]	176	-5.8	17.0	152	-3.3	13.3	71	-5.3	10.7	67	-5.6	10.5	47	-4.3	12.5	77	-9.0	12.3
SE-PRE[b]	176	17.1	18.5	152	9.9	13.7	71	8.8	11.6	67	7.2	12.8	47	4.7	12.4	77	6.6	16.3

Table 10

Sustained Effects Study
Area: Reading-Advanced (Reading Comprehension)
Group: EVALUATION SAMPLE
NCE Counts, Means and Standard Deviations
by Test Date and Change Values

1992-93 Grade

Testing[a] Points	2			3			4			5			6			7		
	N	MEAN	SD	N	MEAN	SD	N	MEAN	SD	N	MEAN	SD	N	MEAN	SD	N	MEAN	SD
4 / 92 PRE	231	25.0	16.1	197	28.2	10.5	108	27.4	10.5	72	25.3	11.7	107	26.9	9.6	95	25.1	10.1
4 / 93 POS	231	26.8	12.7	197	24.2	12.9	108	26.8	10.8	72	29.7	9.7	107	26.6	11.3	95	29.1	9.9
4 / 94 SE	231	30.2	15.1	197	28.7	13.0	108	31.7	10.1	72	29.3	11.6	107	30.4	11.0	95	26.2	11.5
POS-PRE[b]	231	1.8	13.1	197	-3.9	12.7	108	-0.6	12.1	72	4.4	11.3	107	-0.3	11.9	95	4.0	11.6
SE-POS[b]	231	3.4	13.3	197	4.5	12.7	108	5.0	11.4	72	-0.5	10.9	107	3.9	11.8	95	-2.8	10.5
SE-PRE[b]	231	5.2	15.8	197	0.6	13.2	108	4.4	11.8	72	3.9	12.4	107	3.6	12.6	95	1.1	11.9

[a]PRE=Pretest, POS=Posttest, SE=Sustained Effect, POS-PRE=Posttest minus Pretest, SE-POS=Sustained Effect minus Posttest, SE-PRE=Sustained Effect minus Pretest

[b]Rounding caused some change values to differ from expected values.

Table 11

Sustained Effects Study
Area: Reading-Advanced (Reading Comprehension)
Group: SERVED
NCE Counts, Means and Standard Deviations
by Test Date and Change Values

1992-93 Grade

Testing[a] Points	2 N	2 MEAN	2 SD	3 N	3 MEAN	3 SD	4 N	4 MEAN	4 SD	5 N	5 MEAN	5 SD	6 N	6 MEAN	6 SD	7 N	7 MEAN	7 SD
4 / 92 PRE	26	22.8	14.2	15	26.3	9.5	8	23.8	11.4	7	20.9	14.4	5	26.2	9.2	5	18.6	16.5
4 / 93 POS	26	30.3	14.4	15	29.0	12.0	8	30.1	10.8	7	28.3	12.6	5	33.4	11.0	5	26.4	6.7
4 / 94 SE	26	30.3	16.8	15	31.8	14.9	8	36.4	13.2	7	22.1	15.4	5	30.0	14.1	5	14.6	8.6
POS-PRE[b]	26	7.5	16.1	15	2.7	12.5	8	6.4	8.8	7	7.4	17.1	5	7.2	5.7	5	7.8	13.2
SE-POS[b]	26	-0.0	14.6	15	2.8	18.8	8	6.3	13.7	7	-6.1	11.8	5	-3.4	15.3	5	-11.8	12.8
SE-PRE[b]	26	7.5	18.5	15	5.5	16.7	8	12.6	11.4	7	1.3	23.5	5	3.8	15.2	5	-4.0	18.7

Table 12

Sustained Effects Study
Area: Reading-Advanced (Reading Comprehension)
Group: TOTAL
NCE Counts, Means and Standard Deviations
by Test Date and Change Values

1992-93 Grade

Testing[a] Points	2 N	2 MEAN	2 SD	3 N	3 MEAN	3 SD	4 N	4 MEAN	4 SD	5 N	5 MEAN	5 SD	6 N	6 MEAN	6 SD	7 N	7 MEAN	7 SD
4 / 92 PRE	433	24.0	15.7	364	28.6	10.9	187	27.6	10.3	146	26.3	11.1	159	27.6	10.2	177	24.5	12.0
4 / 93 POS	433	34.7	17.1	364	32.1	16.5	187	32.9	12.8	146	34.7	10.5	159	30.3	12.0	177	33.6	11.2
4 / 94 SE	433	34.1	17.0	364	33.3	14.1	187	34.0	10.9	146	31.6	12.2	159	31.5	11.5	177	27.9	12.9
POS-PRE[b]	433	10.7	17.5	364	3.5	16.1	187	5.3	13.0	146	8.4	11.2	159	2.7	12.4	177	9.1	13.9
SE-POS[b]	433	-0.6	15.6	364	1.2	13.7	187	1.1	12.3	146	-3.1	11.0	159	1.2	12.6	177	-5.8	11.7
SE-PRE[b]	433	10.2	18.0	364	4.7	14.3	187	6.4	11.9	146	5.3	13.3	159	3.9	12.6	177	3.4	14.4

[a]PRE=Pretest, POS=Posttest, SE=Sustained Effect, POS-PRE=Posttest minus Pretest, SE-POS=Sustained Effect minus Posttest, SE-PRE=Sustained Effect minus Pretest

[b]Rounding caused some change values to differ from expected values.

Table 13

Sustained Effects Study
Area: Math-Basic (Total Math)
Group: EXITED
NCE Counts, Means and Standard Deviations
by Test Date and Change Values

1992-93 Grade

Testing[a] Points	2 N	2 MEAN	2 SD	3 N	3 MEAN	3 SD	4 N	4 MEAN	4 SD	5 N	5 MEAN	5 SD	6 N	6 MEAN	6 SD	7 N	7 MEAN	7 SD
4 / 92 PRE	0	0	0	198	29.0	13.3	228	29.5	9.0	208	29.3	8.9	174	28.6	7.4	156	27.5	8.7
4 / 93 POS	0	0	0	198	50.5	20.2	228	46.5	11.6	208	47.3	11.7	174	43.7	9.0	156	43.8	11.9
4 / 94 SE	0	0	0	198	42.6	15.4	228	40.7	13.4	208	37.2	13.3	174	37.4	11.6	156	33.2	11.0
POS-PRE[b]	0	0	0	198	21.4	20.0	228	17.0	10.5	208	17.9	13.5	174	15.1	8.7	156	16.3	11.2
SE-POS[b]	0	0	0	198	-7.8	19.4	228	-5.9	13.0	208	-10.1	14.9	174	-6.2	11.0	156	-10.6	10.4
SE-PRE[b]	0	0	0	198	13.6	16.8	228	11.1	12.8	208	7.9	14.1	174	8.9	11.4	156	5.7	11.0

Table 14

Sustained Effects Study
Area: Math-Basic (Total Math)
Group: EVALUATION SAMPLE
NCE Counts, Means and Standard Deviations
by Test Date and Change Values

1992-93 Grade

Testing[a] Points	2 N	2 MEAN	2 SD	3 N	3 MEAN	3 SD	4 N	4 MEAN	4 SD	5 N	5 MEAN	5 SD	6 N	6 MEAN	6 SD	7 N	7 MEAN	7 SD
4 / 92 PRE	0	0	0	128	23.8	14.9	141	28.9	10.1	136	28.6	8.4	153	28.8	7.1	123	27.4	7.9
4 / 93 POS	0	0	0	128	28.6	16.3	141	32.2	8.8	136	29.5	9.1	153	29.5	9.4	123	28.6	8.4
4 / 94 SE	0	0	0	128	35.3	13.0	141	35.9	14.6	136	30.3	11.9	153	30.2	10.1	123	26.0	9.8
POS-PRE[b]	0	0	0	128	4.9	15.1	141	3.4	8.5	136	0.9	9.4	153	0.8	8.8	123	1.2	8.1
SE-POS[b]	0	0	0	128	6.7	15.6	141	3.6	12.6	136	0.8	11.5	153	0.7	10.1	123	-2.6	10.6
SE-PRE[b]	0	0	0	128	11.5	15.9	141	7.0	13.9	136	1.7	10.3	153	1.5	10.3	123	-1.4	9.3

[a]PRE=Pretest, POS=Posttest, SE=Sustained Effect, POS-PRE=Posttest minus Pretest, SE-POS=Sustained Effect minus Posttest, SE-PRE=Sustained Effect minus Pretest

[b]Rounding caused some change values to differ from expected values.

Table 15

Sustained Effects Study
Area: Math-Basic (Total Math)
Group: SERVED
NCE Counts, Means and Standard Deviations
by Test Date and Change Values

1992-93 Grade

Testing[a] Points	2 N	2 MEAN	2 SD	3 N	3 MEAN	3 SD	4 N	4 MEAN	4 SD	5 N	5 MEAN	5 SD	6 N	6 MEAN	6 SD	7 N	7 MEAN	7 SD
4 / 92 PRE	0	0	0	10	26.4	13.3	8	26.0	11.5	33	28.1	9.6	15	26.1	9.8	40	25.7	9.4
4 / 93 POS	0	0	0	10	37.3	17.3	8	29.3	12.1	33	29.1	9.5	15	26.1	13.8	40	29.3	9.9
4 / 94 SE	0	0	0	10	32.6	19.9	8	34.6	13.5	33	25.2	12.5	15	23.3	11.5	40	25.2	10.0
POS-PRE[b]	0	0	0	10	10.9	12.2	8	3.3	12.1	33	1.0	7.2	15	0.0	8.5	40	3.6	11.2
SE-POS[b]	0	0	0	10	-4.7	15.2	8	5.4	10.5	33	-3.9	8.7	15	-2.9	9.8	40	-4.1	9.3
SE-PRE[b]	0	0	0	10	6.2	14.8	8	8.6	16.2	33	-3.0	10.0	15	-2.9	9.4	40	-0.5	11.4

Table 16

Sustained Effects Study
Area: Math-Basic (Total Math)
Group: TOTAL
NCE Counts, Means and Standard Deviations
by Test Date and Change Values

1992-93 Grade

Testing[a] Points	2 N	2 MEAN	2 SD	3 N	3 MEAN	3 SD	4 N	4 MEAN	4 SD	5 N	5 MEAN	5 SD	6 N	6 MEAN	6 SD	7 N	7 MEAN	7 SD
4 / 92 PRE	0	0	0	336	26.9	14.1	377	29.2	9.5	377	29.0	8.8	342	28.5	7.4	319	27.2	8.5
4 / 93 POS	0	0	0	336	41.8	21.5	377	40.8	12.8	377	39.3	13.9	342	36.6	11.9	319	36.1	12.8
4 / 94 SE	0	0	0	336	39.6	15.1	377	38.7	14.0	377	33.7	13.4	342	33.6	11.7	319	29.4	11.0
POS-PRE[b]	0	0	0	336	14.8	19.7	377	11.6	11.8	377	10.3	14.4	342	8.0	11.3	319	8.9	12.4
SE-POS[b]	0	0	0	336	-2.2	19.2	377	-2.1	13.6	377	-5.6	14.2	342	-3.0	11.1	319	-6.7	11.0
SE-PRE[b]	0	0	0	336	12.6	16.5	377	9.5	13.4	377	4.7	13.1	342	5.1	11.5	319	2.2	10.9

[a]PRE=Pretest, POS=Posttest, SE=Sustained Effect, POS-PRE=Posttest minus Pretest, SE-POS=Sustained Effect minus Posttest, SE-PRE=Sustained Effect minus Pretest

[b]Rounding caused some change values to differ from expected values.

Table 17

Sustained Effects Study
Area: Math-Advanced (Concepts and Applications)
Group: EXITED
NCE Counts, Means and Standard Deviations
by Test Date and Change Values

1992-93 Grade

Testing[a] Points	2			3			4			5			6			7		
	N	MEAN	SD	N	MEAN	SD	N	MEAN	SD	N	MEAN	SD	N	MEAN	SD	N	MEAN	SD
4 / 92 PRE	0	0	0	202	37.4	14.1	228	32.1	9.7	213	30.5	10.5	180	31.7	9.2	160	29.8	10.0
4 / 93 POS	0	0	0	202	49.4	19.2	228	45.0	11.6	213	47.6	12.3	180	43.2	9.9	160	44.7	12.2
4 / 94 SE	0	0	0	202	42.7	13.8	228	41.3	13.9	213	40.5	13.1	180	39.7	11.7	160	37.3	12.5
POS-PRE[b]	0	0	0	202	12.0	19.8	228	12.9	10.9	213	17.1	13.5	180	11.5	9.8	160	14.9	11.6
SE-POS[b]	0	0	0	202	-6.7	20.2	228	-3.7	12.9	213	-7.1	14.6	180	-3.5	10.4	160	-7.4	11.7
SE-PRE[b]	0	0	0	202	5.3	17.1	228	9.2	12.5	213	10.0	13.7	180	8.0	11.3	160	7.5	12.5

Table 18

Sustained Effects Study
Area: Math-Advanced (Concepts and Applications)
Group: EVALUATION SAMPLE
NCE Counts, Means and Standard Deviations
by Test Date and Change Values

1992-93 Grade

Testing[a] Points	2			3			4			5			6			7		
	N	MEAN	SD	N	MEAN	SD	N	MEAN	SD	N	MEAN	SD	N	MEAN	SD	N	MEAN	SD
4 / 92 PRE	0	0	0	129	33.3	15.3	142	31.3	11.4	136	30.3	8.8	153	31.2	9.9	123	30.8	8.9
4 / 93 POS	0	0	0	129	33.1	15.5	142	32.4	8.6	136	30.8	10.4	153	30.9	10.0	123	31.7	8.8
4 / 94 SE	0	0	0	129	35.3	12.1	142	36.5	13.9	136	33.1	12.9	153	33.6	10.2	123	31.1	10.8
POS-PRE[b]	0	0	0	129	-0.1	20.3	142	1.1	10.5	136	0.5	10.4	153	-0.3	10.4	123	0.9	9.6
SE-POS[b]	0	0	0	129	2.2	16.6	142	4.1	13.6	136	2.3	11.7	153	2.7	10.9	123	-0.5	12.4
SE-PRE[b]	0	0	0	129	2.0	16.1	142	5.2	14.1	136	2.8	10.9	153	2.4	11.8	123	0.4	10.0

[a]PRE=Pretest, POS=Posttest, SE=Sustained Effect, POS-PRE=Posttest minus Pretest, SE-POS=Sustained Effect minus Posttest, SE-PRE=Sustained Effect minus Pretest

[b]Rounding caused some change values to differ from expected values.

Table 19

Sustained Effects Study
Area: Math-Advanced (Concepts and Applications)
Group: SERVED
NCE Counts, Means and Standard Deviations
by Test Date and Change Values

1992-93 Grade

Testing[a] Points	2			3			4			5			6			7		
	N	MEAN	SD	N	MEAN	SD	N	MEAN	SD	N	MEAN	SD	N	MEAN	SD	N	MEAN	SD
4 / 92 PRE	0	0	0	15	36.5	20.5	10	25.8	7.7	35	30.9	11.5	20	28.0	9.1	44	28.2	9.5
4 / 93 POS	0	0	0	15	46.4	17.4	10	30.7	16.1	35	34.4	10.6	20	22.6	13.0	44	30.0	11.2
4 / 94 SE	0	0	0	15	33.7	16.7	10	31.6	18.8	35	30.8	14.9	20	23.8	11.1	44	28.3	11.8
POS-PRE[b]	0	0	0	15	9.9	24.3	10	4.9	10.9	35	3.5	9.4	20	-5.4	11.2	44	1.8	11.5
SE-POS[b]	0	0	0	15	-12.7	17.3	10	0.9	15.7	35	-3.6	12.7	20	1.3	12.8	44	-1.7	13.3
SE-PRE[b]	0	0	0	15	-2.8	27.5	10	5.8	17.9	35	-0.1	10.5	20	-4.1	11.1	44	0.1	14.7

Table 20

Sustained Effects Study
Area: Math-Advanced (Concepts and Applications)
Group: TOTAL
NCE Counts, Means and Standard Deviations
by Test Date and Change Values

1992-93 Grade

Testing[a] Points	2			3			4			5			6			7		
	N	MEAN	SD	N	MEAN	SD	N	MEAN	SD	N	MEAN	SD	N	MEAN	SD	N	MEAN	SD
4 / 92 PRE	0	0	0	346	35.8	15.0	380	31.6	10.4	384	30.5	10.0	353	31.3	9.5	327	29.9	9.6
4 / 93 POS	0	0	0	346	43.2	19.4	380	39.9	12.4	384	40.4	14.0	353	36.7	12.2	327	37.8	12.8
4 / 94 SE	0	0	0	346	39.6	13.8	380	39.2	14.3	384	37.0	13.7	353	36.1	11.8	327	33.8	12.3
POS-PRE[b]	0	0	0	346	7.4	21.0	380	8.3	12.1	384	10.0	14.5	353	5.4	11.9	327	7.9	12.9
SE-POS[b]	0	0	0	346	-3.7	19.3	380	-0.7	13.7	384	-3.4	14.1	353	-0.6	11.1	327	-4.0	12.6
SE-PRE[b]	0	0	0	346	3.8	17.4	380	7.6	13.4	384	6.6	13.1	353	4.9	12.0	327	3.8	12.5

[a]PRE=Pretest, POS=Posttest, SE=Sustained Effect, POS-PRE=Posttest minus Pretest, SE-POS=Sustained Effect minus Posttest, SE-PRE=Sustained Effect minus Pretest

[b]Rounding caused some change values to differ from expected values.

Table 21

Sustained Effects Study
Treatment Change Analysis[a]

Study Group	N	4 / 93 Posttest	4 / 92 Pretest	Change[b]
EXITRB	577	39.1	25.1	14.0
EVSAMPRB	780	23.4	23.8	-0.4
SERVEDRB	68	25.5	23.1	2.4
TOTALRB	1,425	29.8	24.3	5.5
EXITRA	590	42.6	26.5	16.1
EVSAMPRA	810	26.7	26.4	0.3
SERVEDRA	66	29.7	23.4	6.3
TOTALRA	1,466	33.2	26.3	6.9
EXITMB	964	46.5	28.9	17.7
EVSAMPMB	681	29.7	27.6	2.2
SERVEDMB	106	29.6	26.6	2.9
TOTALMB	1,751	39.0	28.2	10.7
EXITMA	983	46.1	32.4	13.7
EVSAMPMA	683	31.8	31.4	0.4
SERVEDMA	124	32.1	29.7	2.3
TOTALMA	1,790	39.6	31.8	7.8

[a] 4 / 93 Posttest Mean minus 4 / 92 Pretest Mean.

[b] Rounding caused some change values to differ from expected values.

Table 22

Sustained Effects Study
Short-Term Sustained Effect Change Analysis[a]

Study Group	N	4 / 94 SE Test	4 / 93 Posttest	Change[b]
EXITRB	577	35.7	39.1	-3.4
EVSAMPRB	780	26.5	23.4	3.1
SERVEDRB	68	27.4	25.5	2.0
TOTALRB	1,425	30.2	29.8	-0.4
EXITRA	590	37.2	42.6	-5.4
EVSAMPRA	810	29.5	26.7	2.9
SERVEDRA	66	29.3	29.7	-0.9
TOTALRA	1,466	32.6	33.2	-0.6
EXITMB	964	38.5	46.5	-8.0
EVSAMPMB	681	31.6	29.7	1.9
SERVEDMB	106	26.3	29.6	-3.2
TOTALMB	1,751	35.1	39.0	-3.9
EXITMA	983	40.5	46.1	-5.6
EVSAMPMA	683	34.0	31.8	2.2
SERVEDMA	124	29.2	32.1	-2.9
TOTALMA	1,790	37.2	39.6	-2.4

[a] 4 / 94 Sustained Effect Mean minus 4 / 93 Posttest Mean.

[b] Rounding caused some change values to differ from expected values.

Table 23

Sustained Effects Study
Long-Term Sustained Effect Change Analysis[a]

Study Group	N	4 / 94 SE Test	4 / 92 Pretest	Change[b]
EXITRB	577	35.7	25.1	10.6
EVSAMPRB	780	26.5	23.8	2.7
SERVEDRB	68	27.4	23.1	4.4
TOTALRB	1,425	30.2	24.3	5.9
EXITRA	590	37.2	26.5	10.8
EVSAMPRA	810	29.5	26.4	3.2
SERVEDRA	66	29.3	23.4	5.9
TOTALRA	1,466	32.6	26.3	6.3
EXITMB	964	38.5	28.9	9.7
EVSAMPMB	681	31.6	27.6	4.0
SERVEDMB	106	26.3	26.6	-0.3
TOTALMB	1,751	35.1	28.2	6.9
EXITMA	983	40.5	32.4	8.1
EVSAMPMA	683	34.0	31.4	2.6
SERVEDMA	124	29.2	29.7	-0.5
TOTALMA	1,790	37.2	31.8	5.4

[a] 4 / 94 Sustained Effect Mean minus 4 / 92 Pretest Mean.
[b] Rounding caused some change values to differ from expected values.

Table 24

Sustained Effects Study
Individual Pupil Change
Percent Greater Than Zero[a]

Study Group	N	Posttest minus Pretest	Sustained Effect minus Posttest	Sustained Effect minus Pretest
EXITRB	577	91.9	35.9	79.5
EVSAMPRB	780	45.6	60.4	58.3
SERVEDRB	68	55.9	48.5	61.8
TOTALRB	1,425	64.8	49.9	67.1
EXITRA	590	89.8	35.9	75.8
EVSAMPRA	810	47.9	57.8	57.7
SERVEDRA	66	69.7	48.5	62.1
TOTALRA	1,466	65.8	48.6	65.1
EXITMB	964	95.7	25.4	77.5
EVSAMPMB	681	57.7	53.5	58.3
SERVEDMB	106	55.7	38.7	44.3
TOTALMB	1,751	78.5	37.1	68.0
EXITMA	983	88.9	33.1	74.4
EVSAMPMA	683	48.6	55.3	57.8
SERVEDMA	124	52.4	41.9	49.2
TOTALMA	1,790	71.0	42.2	66.3

[a] The proportion of the group with a positive change value.

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